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COMPUTERWORLD

OLE, OpenDoc duel

By Elizabeth Heichler and William Brandel

Developers interviewed said they prefer OpenDoc over OLE 2.0 for these reasons:

- It provides a higher-level interface that is easier to program.
- It promises to allow use of both OpenDoc parts and OLE components.
- It is more truly object-oriented than OLE, allowing for object inheritance, for example.

In the fight to establish a dominant component architecture on the desktop, Microsoft Corp.'s heavyweight OLE seems to have OpenDoc on the ropes

But corporate applications developers who think OpenDoc can deliver an impressive counterpunch to Object Linking and Embedding are flocking to the underdog's corner. And Microsoft will soon acknowledge this reality by disclosing plans for interoperability with OpenDoc, Kathryn Hinsch, Microsoft's group manager for enterprise developer marketing, said last week

That would be good news to users such as Brand T Burns, a senior systems engineer at Metropolitan Life Insurance Co. in Parsippany, N.J.

"We're a shop with two separate camps, OS/2 and Windows, and we'd like to be able to provide services to both groups. OpenDoc could be the answer," he said. "Development with OpenDoc seems to be a lot more straightforward than [with] OLE — OLE is very kludgy."

Both OLE 2.0 and OpenDoc are frameworks under which custom applications can be assembled from off-the-shelf software components.

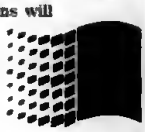
OpenDoc is backed by a consortium of vendors, including IBM, Novell, Inc. and Apple Computer, Inc., but the effort has

Duel, *page 117*

Buggy beta won't alter user plans

By Stuart J. Johnston

While some users expressed concern last week that Microsoft Corp. will miss its August delivery date for Windows 95, most said recent reports of buggy beta versions will have little effect on their plans.



None of the nearly two dozen developers and Windows 95 beta users contacted by *Computerworld* had encountered any of the most publicized bugs, even though some of them were running the applications that reportedly triggered the problems.

For its part, Microsoft acknowledged that bugs still linger in the copies of Windows 95 that will ship during the next few weeks to some 400,000 participants in the broadscale "Preview" program.

Taking chances

Some information systems managers said they trust that Microsoft will fix the bugs in time, so they plan to go ahead and deploy Windows 95. Others said they had already planned to take a wait-and-see approach.

"Our end users want it, and we've found the beta to be fairly stable," said Barry Moody, a senior network analyst at the University of Texas in Austin.

Buggy beta, *page 16*

IBM centralizes net control

By Patrick Dryden
LAS VEGAS

NETWORK MANAGEMENT

The network management market is so immature that barely 80,000 platforms have been installed worldwide, according to The Burton Group.

Seeking to provide a single point of control for enterprise networks, IBM plans to deliver the first of a group of SystemView management platforms — code-named Karat — as early as next month, officials at the company's networking software division said last week.

Karat integrates common management services behind a task-oriented interface that promises simple monitoring and maintenance of all the systems, links and functions of that heterogeneous monster called the enterprise network.

The goal is to join disparate products from IBM and 220 partners under one console: first under AIX Unix, then OS/2 and later OS/400 and MVS. The AIX console is expected to ship at the end of April or early May, followed by OS/2 in the third or fourth quarter and OS/400 and MVS by year's end or early 1996.

The second phase of IBM's strategy calls for new object-oriented services and complex agents from IBM and independent software vendors. The third phase involves conversion of NetView, network storage and other current IBM tools to the object-oriented Karat framework.

Other vendors, meanwhile, continue to enhance enterprise management offerings that already bridge the chasm between network and systems management (see story, page 14).

IBM, *page 14*

Users wary of Oracle/Powersoft tiff

In the middle

Sybase and Oracle are hammering out a contract that calls for the following:

- Sharing database code with the other company's development tools group 60 days before the new database is released
- Creating internal barriers at each company to prevent database developers from sneaking peeks at early versions of the other company's database

By Kim S. Nash

Some early users of Powersoft's PowerBuilder 4.0 development kit have discovered what they call the first tangible sign of a worrisome rift between Oracle Corp. and Powersoft, a unit of Sybase, Inc.

That sign is the fact that PowerBuilder 4.0 lacks a key driver for linking Oracle7 and PowerBuilder 4.0 over Microsoft Corp.'s Windows NT 3.5.

The announcement last November that Sybase planned to buy Powersoft sparked fears among analysts and users that PowerBuilder would no longer be database-neutral.

The driver gap could be "the start of walls going up" between Oracle and Powersoft, said Mike Packard, a consultant at Solution Source in San Diego.

"It almost looks like Oracle is not providing drivers at all to Powersoft anymore, which makes us real anxious here," Packard said.

Oracle/Powersoft, *page 117*

Newspaper
#BXBBJFT#****** CAR-RT SORT ** C035
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UNIVERSITY MICROFILMS INT 0002
UNIVERSITY MICROFILMS INT 0011 6 XC
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ANN ARBOR MI 48103-1553

Hoechst standardizes on Microsoft Mail

By Saruchi Mohan

When German pharmaceutical giant Hoechst Celanese Corp. decreed that it would standardize on Microsoft Corp.'s Mail, company executives did not realize the impact that decision would have on their U.S. employees.

Cultural change was the biggest challenge of all, said Marlea Kazantzis, a systems analyst in Hoechst's advanced materials group in Summit, N.J., which used IBM's Professional Office System. "People were used to mainframes. We had to retrain everybody," she said last week.

There were technical issues to confront as well. The host-based packages from IBM and Digital Equipment Corp. offered several capabilities not available on Microsoft Mail, such as sophisticated bulletin boards, an ability to run mul-

Hoechst, *page 117*

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What's Inside

April 3, 1995

INTEGRATION fever

Hospitals, HMOs, physicians, insurers and others are feverishly racing to integrate their systems into regional health networks in order to achieve cooperative advantage. IS and information sharing is the R_X for reducing overhead and other costs while improving the quality of care. Part one of a three-part series. **Management, page 81**

■ **New strategies from Intel and Microsoft** look to dramatically alter the notebook market. **NEWS,** *page 4*

■ **IBM combines its object-based VisualAge** development tool and MQSeries messaging middleware to form an enterprisewide, three-tier development tool kit, company executives confirmed. **NEWS,** *page 6*

■ The FCC orders **local telephone companies to reduce the access charges** long-distance companies pay to connect to their local networks. **NEWS,** *page 6*

■ **Connor Peripherals** files a patent complaint against IBM, but the latter claims it is without merit. **NEWS,** *page 16*

■ At a recent developers conference, **Microsoft** executives strove to lay out a coherent definition of how the company intends to integrate its server offerings with future versions of its Office applications, Visual languages line and operating systems and object technologies. **NEWS,** *page 16*

■ **Object tools** are becoming easier to use, **Charles Babcock** says. **NEWS,** *page 118*

■ Forgetting about the bugs in Windows 95's latest beta, **Bill Laberis** suggests that the $64,000 question is: What is the return on this investment for IS shops during the next two years? **VIEWPOINT,** *page 36*

■ A recent **groupware conference** would have been much better if it took advantage of its own technology, **Elisabeth Horwitt** says. **VIEWPOINT,** *page 37*

■ **Paul Strassmann** looks at the absurdity of some of the profitability numbers linked to information technology investments. **VIEWPOINT,** *page 37*

■ Users are extremely happy with the features in **spreadsheets**, but now they want to go even farther — making them minidatabases, for example. **DESKTOP COMPUTING,** *page 41*

■ Apple plans to release new **Macintoshes that sport a different bus architecture** and will force users to upgrade to a new version of Mac OS. **DESKTOP COMPUTING,** *page 49*

■ A **custom client/server application** allowed recent FCC auctions to take place electronically. **WORKGROUP COMPUTING,** *page 58*

■ Novell, Hewlett-Packard and Xerox jointly unveil **NetWare Distributed Print Services Architecture**, which will deliver advanced printing capabilities and simplify the management of network attached printers. **ENTERPRISE NETWORKING,** *page 63*

APPLICATION DEVELOPMENT: Know when to draw the line between designing and tinkering.

■ Users are being deluged with products for **network monitoring and design**, but few of the tools work well together. **ENTERPRISE NETWORKING,** *page 63*

■ A year after detailing plans for getting into the **distributed systems management market**, Candle is still not ready to ship the software. Users and analysts say it needs to meet its midyear deadline to avoid getting left behind. **LARGE SYSTEMS,** *page 72*

■ LBMS' Object Manager adds some **much-needed management capabilities to PowerBuilder and Visual Basic**, early users said. **APPLICATION DEVELOPMENT,** *page 76*

■ Buying and living with a fourth-generation language: A developer's journal. **MARKETPLACE,** *page 106*

How do you measure up?

How does your IS department compare with the Computerworld Premier 100? Fill out the Premier 100 survey, and we'll send you a free report showing how your operation compares with Premier 100 averages. Consolidated information from the surveys we collect may be published in a future Premier 100 issue. Send a request on company letterhead to Paul Gillin, Editor, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701 or E-mail to survey@cw.com.

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Editorial/Letters to the editor ..... *Page 36*
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How to contact Computerworld ..... *Page 118*

Executive Briefing

Agents are getting around. No, not the super-secret kind, but the ones that help find information that fits a specific profile. Two such services make their debut — one for the Internet and one for the enterprise. *Pages 8 and 28.* Intelligent agents are how we can expect to operate in the future, AI visionary Raj Reddy says. *Page 89*

Speaking of the 'net, corporations are making good use of the Web's interactive features. That is a positive sign for Virtual Places, a new **Web conferencing package.** *Page 64.* Also new: a Web server from Tandem and a deal to put Adobe's Acrobat document reader and exchange software into Netscape's Web browser. *Pages 8 and 32*

Systems and network management in the news: IBM prepares to launch a SystemView integration project called Karat that will provide an object-oriented method to manage multiple vendors' wares from one console. *Page 1.* **Legent** introduces software to manage Unix-based hierarchical storage management. *Page 10.*

If the technology doesn't kill you, the **culture clash** just might. Both Hoechst Celanese and a New York publisher found this to be true when implementing new systems. *Pages 1 and 53*

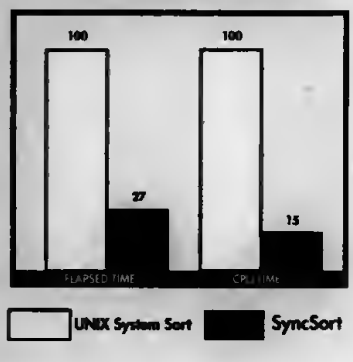
Chips are flying — or not, as in the case of a shortage of **PowerPC 604** chips that are delaying delivery of the system. *Page 4.* On the plus side, a flurry of products already use **Intel's 120-MHz** processor, and **Compaq** plans to use NexGen wares in future products. *Pages 44 and 6*

On the database management front: Sybase's acquisition of Powersoft is showing some cracks, as the new version of PowerBuilder ships without key drivers for **Oracle** databases. *Page 1.* **Computer Associates** seems to be successfully keeping Ingres customers from competitors' grasps. *Page 12.* **Sybase** and **Microsoft** announce competing replication schemes. *Page 69.* And users will finally get some **multivendor database management** features in the next year or two. *Page 72*

On site at user shops this week: Blue Cross Blue Shield of Rhode Island implements a soup-to-nuts data access strategy. *Page 69.* **Elf Atochem** outsources maintenance of its legacy applications. *Page 75.* **Georgia Tech** rolls out query tools. *Page 75.* **Abaco Grupo Financiero** develops ways to let its banking customers deal with the Mexican currency crisis. *Page 76*

The 5th Wave *by* Rich Tennant

PERFORMANCE



FUNCTIONS

	UNIX System Sort	SyncSort
RECORD FORMATS		
Fixed length binary	NO	YES
Variable length binary	NO	YES
ASCII Text	YES	YES
RECORD PROCESSING		
Selection	NO	YES
Reformatting	NO	YES
Summarization	NO	YES
Grouping	NO	YES
COLLATING SEQUENCES		
Standard ASCII	YES	YES
EBCDIC	NO	YES
User Defined	NO	YES
Multi-byte	NO	YES

UNIX has its advantages, but its System Sort isn't one of them.

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The UNIX System Sort

UNIX

Is a chip shortage stalling 604 PowerPCs?

Limited availability said to delay system deliveries

By Lisa Picarille and Jaikumar Vijayan

■ Users expecting systems based on the PowerPC 604 chip will have to wait until the third quarter. Originally slated for volume delivery in January, the chip is now not due in quantity until the second quarter, according to system vendors.

The PowerPC 604, aimed at the high-end multiprocessor server market, is manufactured by both IBM Microelectronics and Motorola, Inc. Some companies had committed to shipping 604-based machines in the first quarter, including FirePower Systems, Inc. and Tatung Science and Technology, Inc. Other vendors planning 604-based systems include Apple Computer, Inc., Motorola, Inc., Radius, Inc. and DayStar Digital, Inc.

Some 604-based systems have hit the market in limited quantities, but indications surfaced last week that volume shipments of these products may be delayed by several months because of an insufficient chip supply.

Tatung, for instance, had announced a 604-based system at Comdex/Fall '94 but is still waiting for the chips to be available in greater number. "Right now, the availability of the processor is not enough for marketing purposes," said Kam Chan, president of Tatung in Milpitas, Calif.

As a result, Tatung's 604-based systems, originally scheduled to ship in the first quarter of this year, will now ship sometime during the second quarter or later, Chan said.

Jon Rubenstein, chief operating officer at FirePower in Menlo Park, Calif., said he was receiving only "limited quantities of 603 and 604" processors. As a result, "we are allocating our machines to our customers," he said. FirePower builds PowerPC 603- and 604-based systems, which it supplies on an OEM basis to systems vendors.

"We are building machines, and we are moving them out the door," Rubenstein said. "But it's not that we are getting all the parts [chips] we need right now."

Power Macintosh clone vendors DayStar and Radius declined to comment on the availability of the 604 chips, but both companies said they are on track to deliver their systems in August.

Summertime blues

Even key PowerPC customer Apple, which plans to use the 604 in its forthcoming Power Surge line of systems, is experiencing delays. Apple had originally told its third-party developers about a spring introduction for the new line but then pushed the announcement back to May 28 and then to an unspecified summer date, said sources close to the Cupertino, Calif., company.

It is likely the systems will be announced at August's Macworld Expo in Boston, according to the sources. "New Power Mac systems will enter the market this summer," said Eric Wee, an Apple spokesman.

Apple expects to unveil three high-end Power Macintosh models based on the 604 chip — Tsunami, Nitro and TNT, according to sources.

The delays could slow down Apple's plans to move its users to the Power Macintosh. Apple has already experienced severe shortages with its Power Macintosh 8100 systems, which use the 601 chip. Apple Chief Executive Officer Michael Spindler acknowledged recently that the problems were due to poor forecasting and component shortages.

Supplier Motorola would not elaborate on whether it is shipping the 604 chips in volume, but a spokesman last week said that "demand [for the product] has so far exceeded expectations."

With Apple expected to consume close to 90% of the 604 chips manufactured, supply could be tight. Currently, Motorola is also continuing to ship the chip to alpha customers of the product — outside of the Apple/IBM/Motorola troika — and will fully meet demand from such customers in the next month or so, the spokesman said.

IBM, meanwhile, has denied any supply problems with the PowerPC 604 chips, which were announced last October. IBM Microelectronics claimed that both the 604 and 601 chip are in volume production and added it is on schedule to ship 100-MHz PowerPC 604 chips to Apple by this week, as originally planned.

"IBM Microelectronics is all set to meet that deadline," an IBM spokeswoman said.

Double time

A total of 2.5 million PowerPC chips are expected to ship this year, more than twice the 1.1 million that shipped in 1994, according to estimates from In-Stat Research, Inc., in Scottsdale, Ariz. The 1995 projections include the PowerPC 601, 602, 603, 603E, and 604 chips.

Intel, Microsoft set plan to reshape notebook platforms

By Michael Fitzgerald

Intel Corp. and Microsoft Corp. are pushing for a fundamental redesign of the notebook architecture by year end's. If all goes well, users would reap much faster performance, lower costs and reduced frustration.

These user benefits will come from the Pentium chip and the Peripheral Component interconnect (PCI) bus on the hardware side and Microsoft's Windows 95 and Intel's Native Signal Processing initiative on the software side. Native Signal Processing will bring programmable multimedia capabilities on board the microprocessor.

Microsoft continues to say Windows 95 will be out in August. Intel's Steve Nachtsheim, vice president of mobile products, said in an interview last week that Pentium, PCI and Native Signal Processing will appear in notebooks before the end of the year.

Nachtsheim also predicted a dramatic price shift in notebook hardware by then.

"You'll see Pentium notebooks with PCI flirting with the $2,000 mark by year's end," Nachtsheim said. This would be a dramatic price decline, given that many notebooks powered by the 25/50-MHz Intel 1486DX2 cost more than $3,000 today.

In fact, as Intel prepares to announce a mobile version of its 60/90-MHz Pentium chip on May 27, sources say the company is trying to persuade vendors to dump the 50-MHz 1486DX2 in favor of the 75-MHz 1486DX4. But so far vendor sources say they are balking at the move because intel has not cut DX4 pricing to DX2 levels.

Like many technology initiatives, the remaking of the mobile market may take much longer than Intel and Microsoft say it will.

For instance, several hardware vendors scoffed at Nachtsheim's time frame.

Native Signal Processing "is a resource hog, and PCI chip sets won't be there by year end to do full-performance products," said one official at a Top 5 notebook maker, who asked not to be named. An official at another vendor, also speaking anonymously, outright rejected predictions of a Pentium/PCI notebook for less than $3,000 by year's end.

"You'll see technology demonstrations at Comdex," said Mike McGuire, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif. The two industry giants' directional statements were "framing the future," he said.

On the way

The future will come faster for some features than for others.

For example, in later versions of Windows 95, Microsoft will add support for intermittent communications and driver support for Integrated Services Digital Network and wireless technologies such as infrared, Cellular Digital Packet Data and paging.

Various types of applications may emerge from these developments. Intel expects that by pushing Native Signal Processing into the mobile arena, it will bring users simultaneous voice and data connections over a single phone line, something that few stand-alone modems offer now. This would be a plus for users in hotels or residences where a single phone line is the rule.

"If you want to do videoconferencing with a salesperson live in the field, this stuff has to be there," Nachtsheim said.

A few questions

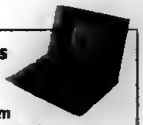
Plenty of potential problems could plague product deployment in the early generations. For instance, how well will new features in Windows 95, such as the integration of PCMCIA, really work?

In the near term, Intel's push to move the market to Pentium may mean more to users than technology advances do. Intel is regularly cutting Pentium and 1486 prices, which, coupled with drops in other component prices, will mean more features at lower prices throughout the year.

"We'd be encouraged to see cheaper Pentium notebooks, but it's only part of the equation for the mobile user," said Joseph Awe, director of strategic technologies at PECO Energy Co. in Philadelphia. Awe said PECO is shying away from deploying notebooks because of their high cost compared with desktops and because many users do not take advantage of the mobile capabilities.

But PECO would welcome the development of new technology, particularly signal processing technology, for notebooks, Awe said.

Mobile futures



Intel and Microsoft are pushing Pentium and Windows 95 as key portable platforms. Touted benefits include:

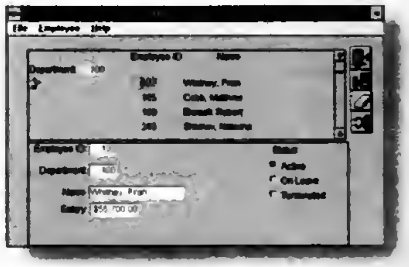
- Faster performance
- Fewer configuration headaches
- Seamless communications
- Innovative new applications (dual-mode phone lines, videoconferencing)

A flurry of products greet Intel's 130-MHz processor. See page 44.

DEVELOPER PRODUCTIVITY COMPARISON

Sybase

PowerBuilder 4.0



52 lines of code

```
dw_d
Maste
IF dw
 CO
 Mes
ELSE
 RO
 Mes
END
Menu
w_em
Menu
w_em
Menu
PrintS
Menu
Close
Menu
w_em
Menu
w_em
)
Menu
Show
```

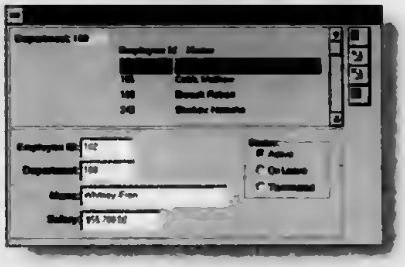
```
ELSE
 COM
 dw_n
 dw_n
END I
Master
ed
long er
long ro
rownu
empnu
IF dw_
 COM
ELSE
 ROL
 Mess
detail")
END I
Master
close(p
Master
dw_de
dw_de
dw_de
Master
```

```
Application.Open
SQLCA.DBMS=ProfileString("PB.INI","Data
base","DBMS"," ")
SQLCA.DbParm=ProfileString("PB.INI","Da
tabase","DbParm"," ")
open(w_employees)
Application.Close
DISCONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  ROLLBACK using SQLCA;
  MessageBox("Disconnect",SQLCA.SQLER-
RTEXT)
END IF
MasterWindow.Open
CONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  MessageBox("Connect
Error",SQLCA.SQLERRTEXT)
  HALT
END IF
dw_master.settransobject ( sqlca )
dw_detail.settransobject ( sqlca )
IF dw_master.Retrieve() = -1 THEN
  ROLLBACK using SQLCA;
  MessageBox("Retrieve","Retrieve Failed")
```

** Taken directly from "PowerBuilder Getting Started"
© 1991-1994 By Powersoft Corporation

Oracle

Developer/2000



4 lines of code

```
exit_form;
create_record;
delete_record;
commit_form;
```

It's amazing how many lines of code you'll find behind the exact same application.

These two programs do exactly the same thing: create a Windows application that retrieves and updates employee information stored on a database server. The 52 line PowerBuilder application was taken directly from the PowerBuilder manual. Oracle's new Developer/2000™ implements the identical application in just 4 lines of code.

If you want to experience the productivity benefits of second generation client/server tools call **1-800-633-1071, Ext. 8168.**

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IBM boosting VisualAge to enterprise level

By Craig Stedman

■ IBM is looking to boost its object-based VisualAge front-end tool into the ranks of full-fledged, enterprisewide development platforms.

To accomplish this, IBM has confirmed it will couple VisualAge with its MQSeries messaging middleware later this year. The blended offering will be aimed at shops developing three-tiered applications with PCs, servers and mainframes. VisualAge is now limited to developing client code, according to analysts.

Code-named Oak, the VisualAge/MQSeries combo is due to be formally announced in early May, said Steve Craggs, MQSeries business manager at IBM's software laboratory in Hursley, England. It should be ready to ship during the summer on IBM's PS/2 and RS/6000 systems, he added. The company will then see where to go from there in terms of supporting other platforms.

More options

Scaling VisualAge beyond the client level would create "some interesting possibilities" for users, said Chet Geschickter, an analyst at Hurwitz Consulting Group, Inc. in Watertown, Mass. While VisualAge already has solid support for creating applications that can interface with mainframe-based Cobol codes, it is a "very local" desktop tool, he said.

But adding messaging to the mix could make programming more complex unless IBM does a good job of masking "the housekeeping details," Geschickter added. "If it's just [VisualAge] connected to messaging services, that could be pretty rough for developers."

The Oak product set will mainly target customers who want to create applications combining bits of existing mainframe code with new client/server pieces, Craggs said. "This assumes that most people will be looking to do development around the mainframe" rather than on it, he said.

MQSeries, a queue-based asynchronous messaging product, will route communications among the different pieces of an application, Craggs said. New code is being added to enable MQSeries to function also as a rules-based engine that would keep the application in sync, he said. But Craggs declined to provide details about the so-called "infrastructure management" capabilities that will be provided in the new code.

This lack of detail prompted some users and analysts to cast a cautious eye on IBM's plan, even though they described the VisualAge/MQSeries marriage as an intriguing union.

"At the conceptual level, it's worth watching," but the product specifics remain vague, said Eugene Friedman, vice president of applied technology at The Chase Manhattan Bank NA in New York. The bank was one of the first VisualAge users and is developing pilot applications with the tool while IBM works in make it more robust.

Mixed message

minuses of using asynchronous messaging products such as IBM's MQSeries in applications

Pluses:

- Less network overhead than synchronous links
- No direct connection required to send messages
- Ability to resume processing while waiting for response

Minuses:

- Potential buildup of message queues
- Potential complexity of synchronizing application

Unanswered questions

At a private briefing on the MQSeries plan several weeks ago, Chase Manhattan officials "asked a lot of questions, and [IBM] didn't really have the answers yet," Friedman said. One key issue is how well the combination will really work across all the levels of computing, he said.

While MQSeries was first developed as a stand-alone product, IBM said last fall that it would start embedding the middleware in its workgroup software and other products. The company last week announced that MQSeries will also be melded with its System Object Model object framework within the next year.

Compaq tweaks Intel, inks NexGen chip deal

By Jaikumar Vijayan

■ In a major win for the company, upstart chip vendor NexGen, Inc. has roped Compaq Computer Corp. into its rapidly growing stable of customers.

Milpitas, Calif.-based NexGen, a manufacturer of Pentium-class microprocessors, last week inked a deal with PC market leader Compaq. Under the deal, NexGen will supply its NX586 Pentium-class and other future processors for inclusion in Compaq products.

Compaq last week did not specify which products would use the NexGen chips but hinted that the chips might initially find a home in consumer-oriented products before climbing onto the corporate desktop.

"It's obviously great news for NexGen. It legitimizes their product," said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

Compaq, which has maintained an unspecified investment in NexGen since 1990, last week said products based on the chip will ship "within the next 12 months."

Compaq currently uses chips from Intel Corp. and Advanced Micro Devices, Inc. But as one of Intel's largest customers, the Houston-based PC maker has been looking for other chip sources. It has been openly critical of Intel's board manufacturing business, which it claims puts Intel in competition with its chip customers. Compaq has also bristled at the "Intel Inside" marketing campaign, which it has claimed obviates the developmental efforts of those customers.

Still, Compaq Chief Executive Officer Eckhard Pfeiffer recently said the firm will continue to work closely with Intel.

"It'll be interesting to see how [Compaq] markets and positions products based on NexGen chips," said Tony Massimini, an analyst at In-Stat Research, Inc. in Scottsdale, Ariz.

NexGen's Pentium-class chips offer the same performance as Intel's Pentium lineup but operate at lower clock speeds. For instance, a NexGen P-90 chip, which actually operates at 83 MHz, performs the same as a 90-MHz Pentium on most standard benchmarks, analysts said.

Also, the pinout of NexGen chips is totally different from that of the current stable of Pentium products, which means Compaq will have to use different motherboards for its NexGen systems.

Compaq's endorsement of NexGen chips could lead other major PC vendors to accept them more too, resulting in more relatively low-cost NexGen-based systems, according to analysts. It could also pressure Pentium prices to drop, analysts said.

NexGen, which last fall became the first Intel clone vendor to ship Pentium-class chips, claims to have more than 100 OEM customers worldwide. In the U.S., however, its presence has been limited to use in systems from little-known third-tier vendors such as Fountain Technology, Inc. and Liuski Computers.

FCC cuts phone access charges

By Gary H. Anthes
WASHINGTON

In a move projected to knock $1 billion a year off the nation's long-distance telephone bills, the Federal Communications Commission last week ordered local telephone companies to reduce charges to long-distance companies for connecting to their local networks.

Those "access charges" cost customers $20 billion a year, and the FCC said its new regulations would reduce that cost between 4% and 5%.

Access charges account for 45 cents out of every dollar in long-distance bills, and long-distance carriers have said they will pass all reductions on to customers. That is especially likely to happen in the ultracompetitive corporate market, observers said.

Page Montgomery, an independent consultant for telecommunications policy and economics in Newton, Mass., said preliminary runs of an econometric model showed the FCC's actions would trim corporate long-distance bills by 3.1%, on average. Still, users and one of the five FCC commissioners said the agency did not go far enough.

"Today's ruling materially underestimates the productivity gains that can reasonably be expected by the large [local] telephone companies," said FCC commissioner Susan Ness.

Since 1990, local carriers have operated under "price cap" regulations. Among other things, those regulations require that charges for interstate services not exceed a base price plus inflation and minus a "productivity factor." The productivity factor is intended to lower the cap to account for gains in operating efficiency due to improving technology.

Long-distance companies and consumer groups have long argued that the 1990 price cap formulas underestimated actual productivity gains and led to unreasonably high access charges.

"The decision is an inappropriate compromise of consumer interests. It clearly did not go far enough," said James S. Blaszak, Washington-based counsel for the Ad Hoc Telecommunications Users Committee, a group of large companies.

A telecommunications manager at a Fortune 100 manufacturing firm that pays $1 million a month in long-distance charges said the FCC should have set the price cap formulas to generate twice the projected $1 billion in savings. "What they have chosen to do is pass along a very small amount of the efficiency and declining costs that the local carriers enjoy at this time," he said.

But if corporate users and the long-distance companies were unhappy with half a loaf, so were the local companies.

"The FCC is lining the pockets of the long-distance carriers at the expense of the nation's communications infrastructure," said Roy Neel, president of the U.S. Telephone Association in Washington, which represents local carriers. "This ruling will deter [local] companies from making the investments necessary to ... deliver advanced technologies."

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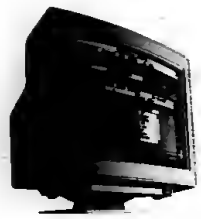

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Tandem to unveil fault-tolerant Web server

By Ellis Booker

Hoping to distinguish itself among the flood of vendors announcing World-Wide Web servers, Tandem Computers, Inc. this week will announce a scalable, multiprocessor, fault-tolerant system — an industry first.

CyberWeb will run across Tandem's Unix product line, including its NonStop parallel processing systems. It will also run on Tandem's soon-to-be released Windows NT-based systems.

The Web server software is derived from a server called the Open Market WebServer, introduced early in March by Open Market, Inc. in Cambridge, Mass.

Customers are key

Tandem executives argue that the company's customer base is the sweet spot for electronic commerce on the Internet. Tandem claims its platforms are used in 75% of the world's automated teller machines, 66% of credit-card processing systems and seven out of 10 of the top value-added electronic data interchange (EDI) networks in the U.S.

Indeed, one possibility would be to use the Tandem system as the interface between private EDI networks and the public Internet.

"Our other message here is we think we can accelerate [Internet] commerce because of our existing relationships with private payment networks," said Anita Danielson, Web product marketing manager at the Cupertino, Calif., firm.

Herb Phillipps, vice president of electronic ServiceWay at the Royal Bank of Canada in Toronto, is working with Tandem to offer full banking services across the Internet. "Within a year, we want to have full-scale banking," said Phillipps, who will start by making customer bank statements available for downloading over the Internet. More features will be added as security systems prove themselves and bank customers grow accustomed to the electronic channel.

"I submit to you that if the big companies and banks don't look to this, the smaller and more agile firms and countries will eat their lunch," Phillipps said.

Clearly aiming at security-conscious users such as banks, Tandem will deliver, along with support for Secure Hypertext Transfer Protocol, a hardware-based security module. The Global Server Internet Security processor from Tandem unit Atalla provides cryptographic services and translates key data, personal identification numbers and passwords from one security mechanism to another. It will sell for $12,500 per unit.

CyberWeb will be available this summer. Prices for the core module will range from $1,068 to $12,280. This price does not include optional hardware- or software-based security modules or a connection to Integrated Commerce Service, Open Market's set of back-end services for merchants.

Ubique boosts on-line Web conferencing tool. See page 64.

Verity unwraps Topic Architecture

Search engine maker Verity, Inc. last week unwrapped Topic Architecture, which features a server scalable from a single workstation to an enterprise system; as well as software agents. These help users hunt for unstructured information.

The agents can be automated to either search for specific information or "watch" for incoming information such as news feeds and electronic mail. Once the information is retrieved or detected, the agent can act on it — for example, by moving it to a folder.

Slow in coming

While not new, software agents that collect information from servers — sometimes known as "spiders" — have never been widely distributed.

"The load imposed by automatic indexing tools is pretty low because there are so few of them in the world, and none really run continuously," said Brian Pinkerton, who maintains the WebCrawler meta index at the Department of Computer Science and Engineering at the University of Washington in Seattle.

The worry, Pinkerton said, is that millions of agents dutifully scouring remote servers might clog the entire Internet (see story page 89).

In fact, several organizations use the WebCrawler to provide local indexes. "The version I ship them [other sites] will not work on the Internet as a whole. They are required to limit their WebCrawling to a few local subnets," Pinkerton said.

Nick Arnett, Verity's World-Wide Web product manager, appeared cognizant of this worry. "Our spider will be priced pretty high because we don't want to sell a lot of them," he said. The company hopes, much like Netscape Communications Corp., that its indexing tool will become a de facto standard, so it can sell lots of server software and enhancements.

Around June 1, Verity will also make available a free spider for creating Verity-compatible indexes. The catch is that, like Pinkerton's, this free spider will be limited to the local server. The indexes it produces can then be efficiently snatched by users of Verity's public spider.

The Topic Information Server will ship in April for $14,995. Topic Agents are priced from $95 to $495.

—Ellis Booker

News Shorts

Digital to announce 64-bit superserver

Digital Equipment Corp. and **Oracle Corp.** will introduce a mainframe-class superserver that runs Oracle7 database software April 11 in New York. The port of Oracle7 to the Digital TurboLaser server represents the first significant commercial application of Digital's 64-bit architecture. Digital will announce two versions of TurboLaser: an 8200 model, which sells for about $100,000, and an 8400, which features up to 12-way symmetrical multiprocessing for less than $200,000.

Seeking bridge technology

The **Object Management Group** (OMG) voted last week to seek technology to bridge its distributed object computing architecture, called the Component Object Request Broker Architecture (CORBA), and **Microsoft Corp.**'s Component Object Model (COM). The OMG is looking for two sets of proposals: one, due in August, for technology linking CORBA to COM as it is now; the second, due in December, for technology linking CORBA to the distributed version of COM promised in Microsoft's future Cairo operating system.

Feds ward off SATAN

The U.S. **Department of Energy**'s Computer Incident Advisory Capability said last week it has developed a defense against the Security Administrator Tool for Analyzing Networks (SATAN), which is due for release on the Internet on Wednesday. SATAN is an "attack scanner" intended for legitimate network security diagnosis, but criminal hackers are also likely to use it. Software called Courtney monitors the connections to the ports probed by SATAN, and when an attack takes place, the affected host is reported. More information about Courtney is available at http://ciac.llnl.gov/ciac/ToolsUnixNetMon.html#Courtney.

CIO comings and goings

Last week, three chief information officers announced they are changing jobs. Former **Seagram & Sons, Inc.** CIO Jack M. Cooper has joined **Bristol-Myers Squibb Co.** as vice president of information management. Gene Friedman retired from his post as vice president of applied technology at **The Chase Manhattan Bank NA** and will establish his own consulting business. Finally, Evan Wride resigned as information systems director at **Nissan Motor Corp.**

Kodak joins computer giants

Eastman Kodak Co. last week turned to a pantheon of computer giants, including **Microsoft**, **Hewlett-Packard Co.** and **IBM**, to help move its digital imaging products into mainstream computer systems for consumer and business use. The most intense deal will be with Microsoft, which plans to ship Kodak's color management software in Windows 95.

Object translator debuts

Object database maker **Ontos, Inc.** in Burlington, Mass., announced an object translator for **Oracle** databases last week. Object Integration Server for Oracle is the first in a series of translator products under way at Ontos to map objects to relational database structures. The product set includes a development kit, runtime license, consulting and training. Its base price is $70,000, and it is due to ship this quarter, Ontos said.

Gerstner stumps for OS/2

IBM Chairman Louis V. Gerstner last week sent out a letter to his top 100 executives, urging them to get 10 software developers on board for OS/2. The calls will target the top 1,000 Windows and DOS developers. An IBM executive confirmed that Microsoft is not on the list.

SCO scales new Unix heights

The Santa Cruz Operation (SCO) will unveil the next major release of its SCO Unix operating system, codenamed Everest, in the second quarter, an executive said last week. The system, now at 1,600 beta sites, includes a journaling file system for quick recovery, compliance with SVID 3 and SPEC 1170 and binary compatibility with previous SCO systems. Pricing and ship dates were not available.

SHORT TAKES **Sequoia Systems, Inc.**'s shareholders approved a plan to acquire **Texas Microsystems, Inc.**, a Houston-based maker of industrial and fault-tolerant PCs. ... **IBM** has licensed **AccessLine Technologies, Inc.**'s Smart Number phone technology for an upcoming personalized communications service.

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Legent tackles Unix client/server backup

By Steve Moore

Legent Corp. last week introduced a family of products that support automated hierarchical storage management and backup for Unix-based client/server networks.

Increased end-user access to image, voice and video data is pushing storage requirements to such levels that systems administrators are hard-pressed to keep up with demand for greater disk capacity, let alone find time to manually manage the additional removable media required for backup.

Legent's Reliance/XP Open Storage Manager (OSM) and Reliance/XP Network Backup and Restore (NBR) were designed to alleviate those problems. OSM identifies seldom-used files and moves them to optical disc and magnetic tape volumes; NBR — which is based on the Alexandria backup product Legent licensed from Spectra Logic Corp. in Boulder, Colo. — supports automated, enterprisewide backup from a single workstation. Both products run on IBM, Hewlett-Packard Co. and Sun Microsystems, Inc. platforms.

Users have hailed OSM's use of standard Unix data formats rather than proprietary ones. "You give up a little capacity when you do that, but when you have a crash, you can just take an optical disc out of the jukebox and read it without having to waste time loading software packages to read data," said John Toole, manager of technical computing at Cummins Engine Co. in Columbus, Ind., and an OSM beta user.

Relying on Legent

Reliance/XP Open Storage Manager

- Frees up Unix client/server disk space through automated hierarchical storage.
- Price: $25,000 includes installation of one server, one storage device and coverage for 20G bytes of file system.

Reliance/XP Network Backup and Restore

- Supports centralized enterprisewide backup of files and databases.
- Price: $25,000 includes installation of one server, 25 clients and support for two relational databases.

Automated features in the NBR product also have drawn praise. "I can automatically shut down an Oracle database, back it up, start it again and have Alexandria page me on the status of the backup over the weekend, so I don't have to worry about dialing in," said Jeff Menz, operations manager at Trade, Inc. in San Mateo, Calif. Alexandria is functionally identical to NBR, but Legent plans to enhance NBR and integrate it with OSM this year.

"I can get 12G bytes/hour backup on my system, and for me, that's pretty sweet," Menz said. Because his company sells trade information on goods brought into the U.S. via seaports, he explained, "our HP [server] is our manufacturing plant, and if we lose the system we're effectively out of business."

Herndon, Va.-based Legent has made "a good start toward creating a new product line in the storage management arena," said Paul Mason, research manager for enterprise systems management at International Data Corp. in Framingham, Mass. "I'm looking forward to seeing how they integrate [OSM and NBR] with their existing mainframe storage management products."

Legent has long-term plans to tightly integrate OSM and NBR with one another as well as with other Legent products and management platforms such as HP's OpenView, he added.

"We have a computer equipment room with no people in there," Toole said. "It would be nice to have [OSM] attached to an SNMP agent for problem notification so we could see what's going on better than [we can] now."

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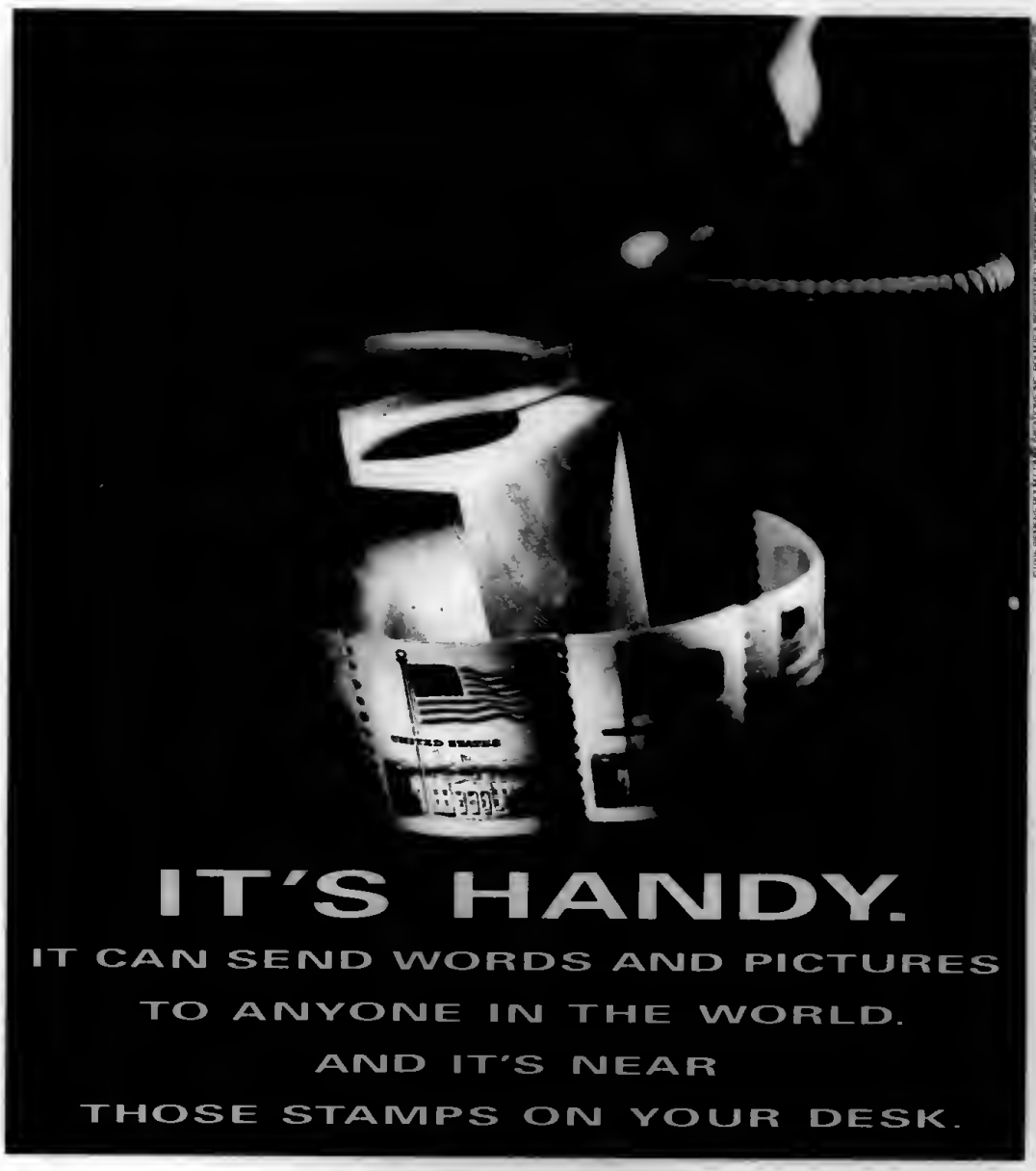

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OpenIngres 2.0 may stave off rivals

By Thomas Hoffman and Kim S. Nash

Will improved database engine performance, parallel features and dual data access paths in the next version of CA-OpenIngres be enough to keep customers loyal to Computer Associates International, Inc.? Based on early reaction from Ingres users, the answer is yes.

The company, which plans to beta-test Version 2.0 of the database server in the fourth quarter, has had to battle aggressive marketing campaigns from a raft of competitors ever since it acquired the assets of The ASK Group, Inc. last June.

Freebies and discounts

Knocking hard on Ingres user doors have been Informix Software, Inc., Oracle Corp. and Sybase, Inc. These and other competitors have been offering attractive conversion programs, discounted products, special consulting deals and other incentives to win converts.

For example, Sybase ran a deal last October through mid-December that included five days of free consulting for every Ingres user site that spent $40,000 or more on Sybase products. It also offered Ingres swappers a 50% discount — up to $300,000 — on Sybase software if the users migrated from Ingres to Sybase's SQL Server database.

More than 50 third-party developers and end-user firms participated in the program, a Sybase spokeswoman said.

Oracle ran a $1,200-a-day course to help third-party developers port applications from Sybase, Ingres and Informix databases to Oracle7. In the past 18 months, nine third-party developers that were formerly Ingres-only shops have ported their products with Oracle's help, according to Mark Hebert, vice president of design and migration services at Oracle.

Key features of CA-OpenIngres 2.0 (Beta slated for fall '95)

- 200% to 300% database engine performance improvements, including improved caching capabilities and OLTP performance.
- FastPath – a technology that will provide Ingres users with dual access paths to database data without requiring any changes to the schema.
- Parallelized Ingres database capabilities will be made available on ICL's Gold Rush platform.

US West Communications, Inc. is now converting some of its Ingres applications to Oracle7, according to sources close to the Englewood, Colo.-based communications firm.

Charles B. Wang, CA chairman and chief executive officer, disputed claims that any of Ingres relational database management system customers have opted to migrate their entire database environments to rival vendors.

Some Ingres customers have expressed interest in having their RDBMS applications coexist with other databases, but several users who were briefed on CA-OpenIngres 2.0 said they are bullish on CA's plans to take the database system to the next level.

"I'm hearing people talk about Cobol interfaces to Ingres and a lot of other interfaces, too," said Mike Leo, technical committee chairman of the North American Ingres User Association. "That's become a pretty popular topic."

Parallel muscle

By promising new features such as a parallel version of Ingres able to run on SP2, IBM's Unix-based parallel processor, as well as other massively parallel processing and symmetrical multiprocessing platforms, CA brings functional enhancements to Ingres that The ASK Group did not consider, said Kitty Weaver, a systems administrator at the National Center for Atmospheric Research in Boulder, Colo.

CA-OpenIngres 2.0 will also feature FastPath, which will provide dual access paths to database data, thus improving the speed of the database engine. The speed might otherwise get bogged down when the engine struggles to respond to end-user queries.

Roberts Express, Inc., an Akron, Ohio-based trucking company, is interested in FastPath because the technology would not force it "to do schema changes so often in a 7-day-by-24-hour computing environment," said Joseph B. Orculich, director of MIS for the transportation services firm.

Greulich said Oracle courted Roberts Express last summer with a dollar-for-dollar offer to migrate its Ingres RDBMS environment to Oracle 7.1. He declined because it "would be a slow move to climb out of one database and develop mission-critical applications on another."

Some of CA's plans for Ingres go beyond playing catch-up with the RDBMS crowd. For example, the Islandia, N.Y.-based software giant is working on injecting object-oriented programming into Ingres to provide polymorphism capabilities, which are designed to simplify communications between objects.

Sybase, Microsoft talk replication. See page 69.

Lawsuits tangle video code

By Lisa Picarille and Stuart J. Johnston

Without admitting guilt, Microsoft Corp. and Intel Corp. last week agreed to stop distributing software that allegedly contains code stolen from Apple Computer, Inc. and will notify third-party developers to stop using the software.

The software in question is Release 1.1D of Video for Windows, a tool kit that lets developers create multimedia applications. Microsoft said it plans to substitute a new version, 1.1E.

The agreement came the same day Apple was denied a permanent injunction against Microsoft. Apple claimed Microsoft violated an earlier restraining order by electronically distributing the code.

Meanwhile, Apple said it will move forward with its copyright infringement lawsuit against Intel, Microsoft and San Francisco Canyon Co.

Canyon had provided driver code for Apple's QuickTime for Windows product and Intel's Video Display Interface. The Intel product was later turned into the Display Control Interface (DCI).

Apple alleged that some of the code Canyon developed for QuickTime for Windows found its way into Intel's DCI, which in turn showed up in Microsoft's Video for Windows 1.1D.

In February, Apple broadened the scope of the suit to include Intel and Microsoft. Apple claims to have exclusive rights to the code that Canyon developed for Intel. Microsoft claims to have licensed the code from Intel.

Two weeks ago, Microsoft fired back with a countersuit, accusing Apple of unfair business practices, intentionally misrepresenting communications between the two companies, falsely accusing Microsoft of stealing technology and falsely characterizing Microsoft products as dependent on Apple technology. Brad Silverberg, senior vice president of Microsoft's Personal Systems division, said the counterclaim will proceed regardless of the outcome of Apple's original suit.

"We have on depositions that Apple executives have admitted that they have lied and continue to try to intimidate the developer community," Silverberg said.

The Macintosh is getting aboard a different bus. See page 44.

Cablevision picks Oracle channel

By Kim S. Nash

Continental Cablevision, Inc. confirmed last week that it is about to launch a massive client/server migration that will ultimately result in it ditching virtually all of its costly, brittle legacy applications.

The $1.2 billion Boston-based cable TV company expects to spend an estimated $20 million on Oracle Corp. software and consulting during the next several years, said Rob Strickland, Continental's chief information officer. A $5 million payment has already been made for basic databases, tools and related utilities and services, he said.

CIO Robert Strickland: *Client/server will help Continental offer new services*

"Moving to a client/server architecture is strategic for us if we're to offer new services," Strickland said. "We've got to do it."

As it stands, the company is unable to funnel fancy new systems now in the works, such as video-on-demand and Internet services, through its Tandem Computers, Inc. machines, he explained. Plus, the 11-year-old homegrown legacy systems cost more than $5 million a year to support and maintain, Strickland said.

Still up in the air is the decision on which Unix hardware and operating system to put the planned Oracle-based software. Strickland said he will spend the next several months evaluating and testing hardware from Hewlett-Packard Co., IBM and Sun Microsystems, Inc. Continental is likely to choose more than one supplier, he said.

While dealing computer vendors may create a more price-competitive atmosphere, any savings could be eaten up quickly by the cost of supporting more than one hardware platform, said Walter DuLaney, a principal consultant at CSC Consulting in Boston. "In the end, most people realize that it's better to deal with only one key supplier," DuLaney said. "And I expect that's what will happen here."

Subscriber info

By this time next year, Continental expects to have several new systems in production, including an Oracle-based subscriber management application — the heart and soul of any cable business. An application for managing field operations, such as deploying workers to install cable service at the homes of new subscribers, is also on the agenda.

The company's 85-member information systems group is in for radical change, Strickland noted. He said he could not yet determine whether cuts or additions would be made to the staff, but how the group is organized will be affected "very profoundly."

For example, where IS workers are now split up according to technical specialty, Strickland hopes to create "liberal arts majors" by training most staffers in a wide range of areas.

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Switches' brew bubbles at Interop

By Laura DiDio
LAS VEGAS

■ Switching was the only game on the Networld/Interop '95 trade show floor here last week. Switches for every topology, of every type and from every major and not-so-major vendor dominated the show.

There was nary a router in sight as no fewer than 20 vendors introduced or demonstrated new internetworking switching devices. The new wares came from AmberWave Systems, Inc., Applied Network Technology, Inc., Cabletron Systems, Inc., Cisco Systems, Inc., Digital Equipment Corp., Fibermux Corp., Grand Junction Networks, Inc., Nashoba Networks, Inc., NetVantage, Inc., Scorpio Communications, Inc. and Standard Microsystems Corp.

"'Switch where you can, route where you must' is the order of the day for my shop," said one network administrator from a Fortune 1,000 firm in the Midwest, who requested anonymity. "Switches are easier to administer, and I can buy three or four switches for the price of one large router, so of course I'm going to install them wherever I can."

Such comments were typical of users' reactions to the cornucopia of switches present every three feet on the show floor. The groundswell of demand for switching is so strong that even router market leader Cisco in San Jose, Calif., is recasting itself as the "worldwide leader in LAN switching."

Offering a Catalyst

Cisco took the opportunity to unveil switches that fit virtually every pocketbook and office environment. Cisco unveiled the modular Catalyst 5000 switch for larger businesses and the Kalpana ProStack fault-tolerant stackable product for smaller companies or remote offices.

Catalyst 5000 is a five-slot device. It integrates switching and routing using the Cisco Internetwork Operating System to allow businesses to communicate across virtual LANs, according to Jayshree Ullal, director of marketing at Cisco's Workgroup Business Unit.

Equipped with two 100M bit/sec. Ethernet ports, Catalyst 5000 can switch more than 1 million packets/sec. and supports local and remote management. Catalyst supports switched Ethernet, 100Base-T "fast" Ethernet, Token Ring 100VG-AnyLAN, Asynchronous Transfer Mode (ATM) and Fiber Distributed Data Interface (FDDI), Ullal said. It also incorporates full embedded Remote Monitoring network management.

Catalyst 5000 will ship in June. The basic chassis costs $5,000, and the optional Ethernet and Token Ring switching and FDDI and ATM Emulation modules are priced at $9,995 each.

Meanwhile, Cisco's Kalpana ProStack stackable switch delivers up to 4.8G bit/sec. of bandwidth and supports 10M, 100M and 155M bit/sec. connections. By using cut-through switching, Kalpana ProStack detects and removes errors on a per-port basis. This ensures that users receive error-free transmission with no performance degradation, Ullal said.

The Kalpana ProStack will also be out in June. Pricing begins at $7,200 for the base EtherSwitch Pro16 unit, while an enhanced version of the Pro16 will list for $8,395. Pricing on optional modules ranges from $995 to $3,500.

Across the floor, Digital was showcasing its new Portswitch 900 family of high-density Ethernet switches. These devices can logically interconnect "any combination of ports" to as many as six independent LAN segments, according to Bill Mello, Digital group marketing manager of hub products.

"We think we've addressed all major user concerns with the Portswitch devices: simplified network changes and management, flexibility in optimizing bandwidth and support for virtual LANs," Mello said.

All three of the new Portswitch 900 units have built-in Simple Network Management Protocol agents to enable users to gather management statistics down to the port level. All of the Portswitch 900 units can be managed using a network management software package that costs $495, Mello said.

The Portswitch 900TP is a 32-port, 10Base-T device that costs $5,500. The Portswitch 900CP is a 16-port, 10Base-2 thin-wire device also priced at $5,500. The 12-port fiber-based Portswitch 900FP costs $5,900.

Other switching highlights at Networld/Interop included Grand Junction's demonstration of a videoconference with Sun Microsystems, Inc. over a "fast" Ethernet backbone between the two booths. Grand Junction also teamed up with Standard Microsystems to deliver new 100M bit/sec. Ethernet solutions.

The two firms announced a version of Standard Microsystems' 16-port TigerHub that incorporates Grand Junction's 100Base-T repeater. The switched version of the TigerHub is due this spring.

IBM centralizes

CONTINUED FROM PAGE 1

Users struggling to monitor myriad management tools greet cure-all claims with skepticism, as did the attendees at Networld/Interop '95 here who previewed Karat on AIX.

"Consolidating all our desktop, server, network and application management looks attractive. IBM makes it sound like one-stop shopping," said Lawrence Douglas, MIS project manager at Callaway Golf in Carlsbad, Calif.

IBM's Lynn Wilczak: *Karat's direction is clearly object-oriented*

Douglas listed nearly a dozen packages that he uses or has tried for managing connections, servers, performance, inventory, application access and software distribution — all on a network that spans five buildings and two international sites and supports client/server accounting and manufacturing functions. That experience had dampened his hope of finding a way to manage all elements.

"Karat seems like a sales tool, not a technological breakthrough," Douglas said. "It could make life easier, but I don't see how it builds additional functionality."

The initial impact of Karat will primarily be on IBM users, who appeared skeptical at first blush. The offering is not necessarily a first, as other vendors claim to provide a full scope of management services to varying degrees.

Another attendee was not sure what Karat could accomplish but hoped it would reduce overall effort and would be easier to use than IBM's NetView.

"Our LAN server monitor and scripts work OK for basic management of the systems and processes, but we want more capabilities without having to write and maintain our own tools," said Larry Zettervall, information systems coordinator for office and executive information services at the U.S. Postal Service in Washington.

As a management shell, Karat is a definite improvement for IBM customers who have had to deal with a fragmented line of management services, said Jamie Lewis, president of The Burton Group, a Salt Lake City consultancy.

"Putting one interface on that mishmash of interfaces, protocols and functions hides the mess [and] makes management transparent," Lewis said. "I'll wait to see how simple and easy it really is. But IBM is very serious about Karat and relatively well positioned to make it work."

One interface

The first step next month — shipping two CD-ROMs to build an AIX-based Karat management platform — will tie together a base of 25 IBM products and programs from developers in the NetView Association under one drag-and-drop interface, said John Byzek, IBM's director of systems management development. It also will streamline ordering, pricing, installation and support of diverse management products, he said.

For example, if a Notes server fails somewhere in the network, Karat could detect the loss, generate a trouble ticket and kick off a change order under established rules. It would then distribute the appropriate software to fix that server, close and log the event — and do all of that automatically, said Lynn Wilczak, IBM's director of systems management investments, planning and controls.

"We're not saying Karat provides a management utopia yet, but our direction to a fully object-oriented system is clear," Wilczak said.

Users face flood of network monitoring tools. See page 63.

On the drawing board

IBM was not the only vendor drawing attention to its network management approach last week at the NetWorld/Interop '95 trade show. Among the other plans unveiled were the following:

▶ Hewlett-Packard Co. said it will make its OpenView management environment more visual and add support for more powerful Oracle Corp.-based databases this summer, said Gordon MacKinney, OpenView program manager.

"Watch for extensions to the three services on top of OpenView, mostly with a systems management focus — like an agent for NetWare servers," MacKinney said.

▶ Sun Microsystems, Inc. is planning a Windows-based front end for its SunNet Manager and Solstice product sets. This feature will improve ease of use, company officials said. An open application programming interface will be available later this year to link diverse consoles, said Walt O'Malley, SunSoft, Inc.'s senior product manager for enterprise management products.

▶ Cabletron Systems, Inc. plans a major update of Spectrum this year with more systems management applications from partners and a version for Microsoft Corp.'s Windows NT, said Patty Chrystyez, director of network management marketing.

▶ Groupe Bull beefed up security services and applications for its Integrated System Management platform, an object-oriented suite coming to the U.S. next month, said Claude Derue, product marketing director. — *Patrick Dryden*

Novell will ship 32-bit client requesters

By Laura DiDio
LAS VEGAS

Last week at Networld/Interop '95, Novell, Inc. formally outlined plans to deliver full 32-bit client requesters for key desktop operating systems, including Macintosh and Microsoft Corp. Windows NT platforms, beginning this quarter.

In fact, Novell expects to ship "in the May time frame" a Windows NT requester now in a "controlled beta release to under 100 users," said William Donahoo, director of marketing at the company's NetWare Products Group.

Availability of 32-bit client requesters will let users of 32-bit operating systems transparently access all NetWare 4.1 services, including NetWare Directory Services, integrated messaging, multiprotocol routing, management and security, and basic file and print capabilities.

From 16 to 32

Novell already offers 16-bit requesters for DOS, Windows, OS/2, Unix and Macintosh clients, but users have been clamoring for Novell to deliver full 32-bit client requesters for months. Trying to run a 16-bit requester on a 32-bit operating system could cause file server crashes, users said.

"I'm very glad Novell is delivering the Windows NT requester. We've been beaten up a bit by our customers who want NT support," said Bob Skinner, a vice president at Network Support Services, Inc., a NetWare 4.x user and Gold reseller in Lathrup Village, Mich.

NT support is a particularly hot concern. Skinner said the Windows NT client requester issue "had turned into a real battleground [between Microsoft and Novell]," with users and resellers getting caught in the political cross fire.

Price structure

Novell will sell its client requester software license kits for Windows NT and Windows 95 for $99 — the same price it charges for its client packages. Users can download client requesters from the NetWire forum on CompuServe for only the connect charges. Microsoft bundles its client or redirector packages in its operating systems free of charge.

Novell vs. Microsoft

In the past two years, relations between Novell and Microsoft on the issue of cross-platform client requesters have turned into a standoff. Microsoft intruded on Novell's turf in the network operating system arena when it shipped Windows for Workgroups. Novell retaliated by terminating Microsoft's client requester licensing agreement. Microsoft then built its own NetWare client redirector, which is bundled into Windows clients for free.

According to Donahoo, Novell delayed delivery of a 32-bit client requester for Windows NT in order to first get NetWare 4.1 out the door. Novell also wanted to deliver support for the more popular 32-bit desktop client environments such as Macintosh and OS/2.

"They were a higher priority for us because they have a bigger presence in the NetWare installed base. But we are committed to providing users with freedom of choice to access NetWare 4.1 services from whatever desktop they choose," Donahoo said.

Donahoo and Bob Kruger, director of technology marketing and standards at Microsoft's Business Systems Group, agree that a "renewed spirit of cooperation" now exists between the two companies. The firms' respective engineering groups are working closely on the requester issue.

Novell users can expect to see some new printing features. See page 63.

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Microsoft details plans for BackOffice futures

By Stuart J. Johnston
NEW ORLEANS

Microsoft Corp.'s BackOffice server suite was on the front burner last week at the company's annual Tech Ed developers conference here.

Company executives strove to lay out a coherent definition of how Microsoft intends to integrate its servers with future versions of its Office applications, Visual languages line and operating systems and object technologies.

Summing up the reaction of many developers at the conference was Jeff Mees, internal database administrator at Corel Corp. in Ottawa. "If it works as well as their presentation, it will be great," Mees said.

The BackOffice suite consists of Windows NT Server combined with Microsoft's SQL Server database; IBM SNA Server mainframe communications package; Systems Management Server (SMS), which performs hardware and software inventory and software distribution functions; and the Microsoft Mail Server.

To spur developer efforts, the company announced the Microsoft Solutions Platform, which bundles copies of most of its productivity applications with most of its development tools and a developer version of the SQL server product.

"We pretty definitely think that [using both] Office and BackOffice is a viable option, [but] we want to keep our options open," said Randy Gregg, assistant vice president of microcomputer operations at Security Benefit Group, Inc., a financial securities company in Topeka, Kan.

Microsoft is offering a $1,999 tool kit deal that bundles the following products together for developers:

- Office
- Project
- Visual Basic
- Visual
- Visual FoxPro
- SQL Server Workstation 4.21
- Solutions Developer's Kit

No pain, no gain

Still, some developers attending the conference said that while they see the need to move forward with new technologies, change does come at a cost.

"We see a high pain factor [in moving to Office tied to BackOffice], but that doesn't mean the payoff isn't high," said Earl McAllen, personal systems coordinator at HNTB, a multinational engineering firm in Kansas City, Mo.

Roger Heinen, senior vice president of Microsoft's developer division, said the company will build its planned object repository as an application on top of its SQL Server database. A repository is a central database that enables corporate developers to use more traditional file-oriented applications. Microsoft announced last spring that it is developing a specification for the repository with Texas Instruments, Inc.

With the delivery of the repository and other components, including the Cairo release of Windows NT and object-based applications, corporate information systems shops will be able to centrally manage and distribute enterprisewide applications, Microsoft officials said.

Before that can happen, however, many evolutionary changes must occur.

Some of the required pieces are here today in the form of Windows NT and the BackOffice suite. The company also plans to deliver SQL Server 6.0 by July and its next-generation electronic-mail server, Exchange server, by year's end.

However, as Microsoft's products become more complex, delivering them anywhere close to the announced schedule becomes a greater challenge. Both the Exchange server and Windows 95 have been repeatedly delayed, for example, and will finally be delivered this year, the company said. SMS also met with recurring delays before its delivery last fall.

All-Microsoft platform

With Office 95, the upcoming 32-bit version of Microsoft's suite of applications, and the services provided by the BackOffice server suite, Microsoft intends to offer a complete client/server platform built mainly with its own products. Some pieces of the puzzle are still as much as two or three years away from delivery, but some attendees said enough is available now to hold their interest.

"This isn't to beat a drum for Microsoft, but when you've got a family of tools that have common interfaces and functions and [common] scripting language, you've saved a lot of [money in] retraining," said Michael Drips, a consultant at Lindenberg & Associates in Overland Park, Kan.

Also needed will be enhancements to several of the company's productivity applications, as well as the middleware "glue" to link them to the BackOffice products. To provide that glue, Microsoft's strategy hinges mainly on Visual Basic for Applications (VBA) and Object Linking and Embedding technology. Today, only Excel and Project have built-in implementations of the VBA development framework, which can drive the functions of other Microsoft applications. During the next year or two, Microsoft will add VBA to the other applications.

Disk maker sues IBM

Conner Peripherals, Inc. last week sued IBM, seeking to bar U.S. sales of all IBM notebook and desktop computers that use what Conner claims is its patented power management technology.

The action stems from a patent awarded to Conner about two weeks ago. The patent covers technology that the San Jose, Calif.-based disk drive maker claims IBM knew it was infringing.

According to Conner, the patented technology significantly extends battery life in portable computing equipment and reduces power consumption and heat in desktop and workstation equipment — all without drastically reducing access and response time.

IBM uses the technology in several of its ThinkPad notebooks and other PCs and workstations, said Jack Bell, a vice president at Conner.

IBM last week dismissed Conner's claim as "completely without merit."

"IBM does not violate this patent that Conner just received, and [the lawsuit] will not affect shipment of any IBM product," a spokesman said.

The spokesman said IBM previously filed a similar patent infringement case — still unresolved — in which it alleges that Conner infringed on 11 IBM storage technology patents.

—Jaikumar Vijayan

Buggy beta

CONTINUED FROM PAGE 1

"The betas are that Windows 95 will be a steamroller," said Thomas Curtin, manager for networks and client/server computing at Welch's in Westfield, N.Y. "Most of our users are [Microsoft] Office, Office, Office," he said, describing the grape juice company's applications of choice.

Meanwhile, other users said they will wait until all problems are fixed — or that their plans do not include Windows 95. "I don't think we'll have much interest in Windows 95 for some time," said Gordon Dodrill, a developer at Sandia National Laboratories in Albuquerque, N.M. He added that he is primarily interested in Windows NT as a platform.

If the latest turmoil does not derail corporate users' intentions, Microsoft can still count on many customers deploying Windows 95 to at least half their users in the first year after the operating system ships, according to an exclusive *Computerworld* survey of 200 IS managers. This figure varies little from surveys performed by several research firms last fall [CW, Nov. 14, 1994].

No bug fixes for 400,000 users

To calm the latest concerns, Microsoft officials claimed they had already fixed most of the bugs outlined in press reports last week. And they insisted that the retail version of the system coming in August will be bugfree.

Most notable among the flaws was one that caused the system to run out of lower or real-mode memory while running multiple copies of 32-bit applications. For example, a user running Microsoft Word and Excel for Windows NT along with the Microsoft Network (MSN) client could freeze the system, especially if several MSN windows were open.

The problem has to do with how Windows 95 manages so-called "system resources," memory that is dedicated to managing the number of windows open and other critical internal system functions. When it runs out of system resources, the system slows down and can crash.

However, the version that the 400,000 Preview evaluation program participants and most beta testers will receive will not contain the fixes. That is because at the point when Microsoft felt it had to begin manufacturing the Preview units, developers were uncertain whether the cure would be worse than the disease.

"We didn't know if making the [code fix] would break some 16-bit [Windows] applications, [and] our assumption was that corporate evaluators will mostly be testing 16-bit apps," said George Moore, the Windows 95 core program manager.

Officially, the Preview program is not a beta, Moore said, although participants will receive the so-called final beta, also referred to as M8 or Build 347. The build number designates how many times the code has been recompiled during the beta-testing process.

Microsoft officials said the bugs have already been fixed in later builds of the code — particularly in Build 431 and later. They also said the code will be tested among a core set of beta testers to make sure all the problems are fixed before the massive commercial shipment begins.

Two of the selected beta testers said last week that the newer code builds do appear to fix the problems.

Build 431 "has done a lot to improve the [system] resource drain problem," said Randy Dugger, director of IS at Liposome Technology, Inc., a pharmaceutical company in Menlo Park, Calif. Still, while Dugger said he will probably roll out Windows 95 to his users within 30 days of its arrival, he said some users are bound to experience problems because there are so many different pieces of hardware and software in the worldwide installed base.

"If you're using industry-standard equipment, it should go really smoothly," Dugger said. "But if you're running of cheapo stuff, I think you're in for an exciting time."

Senior editors William Brandel and Michael Fitzgerald contributed to this report.

The big question about Windows 95 is: What kind of return on investment can IS shops expect? See Editorial, page 36.

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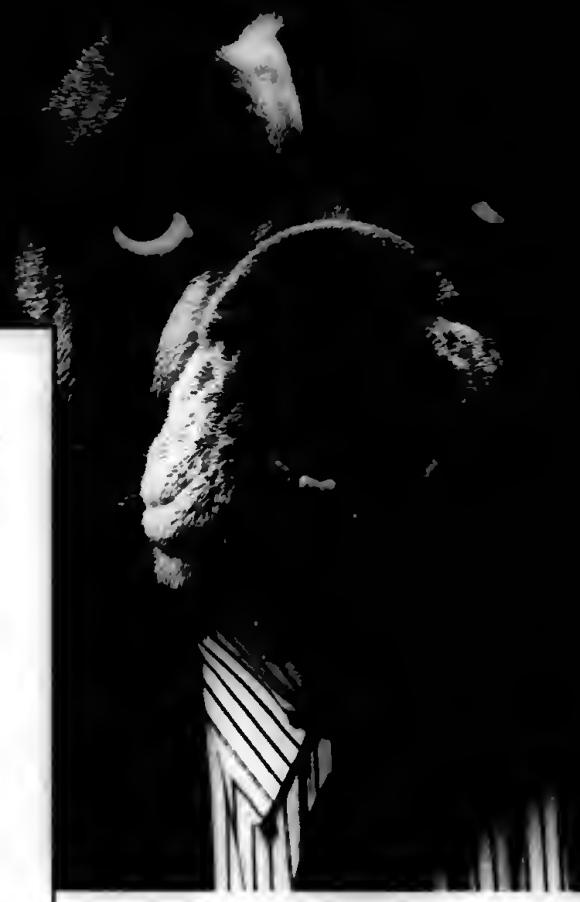

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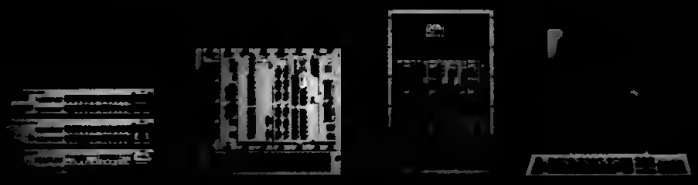

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IBM rides on-line banking wave

By Thomas Hoffman
NEW YORK

As sweeping changes continue to flow through the financial services industry, IBM wants to make sure it is not left out in the cold.

Starting next week, the computer giant's top financial industry specialists will embark on a cross-country tour to meet with information systems managers and business executives at the nation's top banks and brokerages.

IBM is trying to ride the wave of the electronic banking movement and the deregulation of the banking industry by sharing its vision with its largest banking and brokerage customers.

The goal of IBM's road show is to share its findings on the threats and opportunities posed by new technologies in the financial marketplace during the coming decade.

"It used to be that if you owned the branch or cornered a neighborhood, you owned the [regional banking] market," said Robert M. Howe, general manager of IBM's North American finance industry practice. But the advent of electronic banking and sales-oriented branch banking is forcing banks to compete more directly with their innovative uses of technology, Howe added.

Without offering many details, Howe said IBM's plans in electronic banking include teaming up with banking customers on cyberspace pilot projects later this year. "Our role is still being sorted out, but we see an opportunity to tailor the software and the screens" that will be used by electronic banking customers, Howe said.

IBM's Robert M. Howe *explores the possibility of an electronic banking 'utility'*

The executive also said IBM is exploring the possibility of creating an electronic banking "utility" through its stake in Prodigy Services Co.

Chief information officers briefed about IBM's plans said they are intrigued by this latest approach to the financial services sector.

"In the past, most vendors extrapolated the present [technologies to meet] the future" trends, said Walter Leonard, president of Wachovia Operational Services Corp., the operations arm of Winston-Salem, N.C.-based Wachovia Corp. IBM's forecasts on technology's role in the delivery of mass-market products "match up pretty well with ours," he said.

Stiff competition

Industry players are giving Howe and his team high marks for their efforts but added that IBM must swiftly reshape itself to remain competitive with top players such as Price Waterhouse, Deloitte & Touche and Andersen Consulting.

"IBM hasn't been perceived as a leader in electronic banking initiatives. But my impression is that Howe sees that as a strong imperative, and they're finally getting off the dime," said Laura Stuart, president of Stuart Research, a Cambridge, Mass., banking consultancy.

Because banks are expense conscious, IBM must be more price-competitive with rival consultancies. For example, when First Union Corp. in Charlotte, N.C., recently solicited bids from service vendors on a call center project, IBM was the high bidder at $8 million — 25% more than Andersen Consulting's $6 million offer. "I might consider a 10% to 15% [contract] premium if someone has the expertise potential, but I don't believe IBM does," said Judge Fowler, senior vice president and director of systems development at First Union.

Still, other banks are satisfied with the breadth of IBM's consulting services. "I have engaged them on [many] assignments, [and] they have provided their expertise to remove costs from our business processes," said Lloyd F. Darlington, executive vice president of operations at the Bank of Montreal in Toronto.

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The Bottom Line is Information

Now that the forecasting model is up and running, Rosenthal and his staff are using the SAS System to build an interactive database. "The Power Information Network will allow an auto dealer or manufacturer to go online and get market information," Rosenthal explains. "When released, subscribers will be able to select from a long menu of reports and data. The versatility of the SAS System is crucial in developing the reports."

"The bottom line is this: applications are being developed with the SAS System that will deliver the most up-to-date information to those who make decisions for the automotive industry," says Rosenthal. "If manufacturers and dealers can get their hands on accurate market information and predictions, they have a much better chance of meeting customers' needs down the road."

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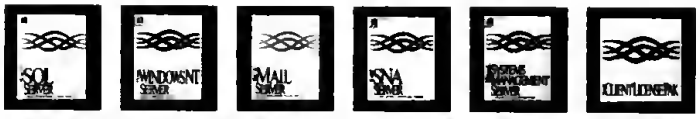

Microsoft SQL Server is part of the Microsoft BackOffice family of server software, five best-of-breed products that combine to form an integrated information system.

*As reported in Communications Week (6/27/94) and InfoWorld (9/19/94). **Gateways are available to over 40 different database platforms from Information Builders, Showcase Corporation, and other leading vendors.

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E-mail link aids LAN management

By Steve Moore

Saber Software Corp. in Dallas and Baranof Software, Inc. in Watertown, Mass., last week linked their products to support integrated management of LANs and LAN-based electronic-mail applications.

The software, called MailCheck Alert for Saber LAN Workstation, forwards E-mail delay and error alerts from Baranof's MailCheck application to a central Saber LAN Workstation console. At that point, LAN administrators can correlate the alerts with network events.

"Users want to bring diverse E-mail systems management into a central console, and this is a significant move in the right direction," said Sara Radicati, president of The Radicati Group, Inc., a Palo Alto, Calif., consultancy.

User reaction was mixed.

"Having a system like MailCheck that verifies mail connectivity reports to a central console will be very useful as networks get more complex and electronic mail becomes more important," said Paul Nazario, a systems analyst at the University of Wisconsin Hospital in Madison, where both MailCheck and Saber LAN Workstation are used.

But in addition to MailCheck's being linked with Saber LAN Workstation, "it would be nice if MailCheck could report to any other management system that can receive SNMP alerts, like [IBM's] NetView/6000," he said. Such integration would allow the hospital to use its staff more efficiently because "help desk personnel now monitoring our mainframe activity would be able to take on a greater role in monitoring our client/server networks," Nazario said.

Source: The Radicati Group, Inc., Palo Alto, Calif.

One MailCheck user was not interested in the product's integration with Saber LAN Workstation. "Right now, we don't use Saber or any kind of centralized management system. But at some point, we might get into" Microsoft Corp.'s Systems Management Server, said Paul Mehrlich, a LAN manager at a Unisys Corp. facility in Salt Lake City. "We have a single E-mail system all on Microsoft Mail, and we just run [MailCheck] at selected sites."

A recent Radicati Group report on user E-mail deployment plans revealed that "although there is a preponderance of LAN E-mail systems, there are still many legacy E-mail systems out there that are not LAN-based," said Judith Rosall, vice president of market research at Radicati.

A Saber spokesman said that while MailCheck Alert for Saber LAN Workstation is LAN-centric — its management console is LAN-based — the product can test host-based E-mail system connectivity through polling techniques. He said host-based E-mail systems typically "don't have the problems that users run into on client/server LANs."

MailCheck Alert for Saber LAN Workstation supports most LAN-based messaging systems, including Microsoft's Mail, Lotus Development Corp.'s CC:Mail and Notes as well as Novell, Inc.'s GroupWise. It is compatible with Saber LAN Workstation 5.0 and Baranof's MailCheck 2.5 and later.

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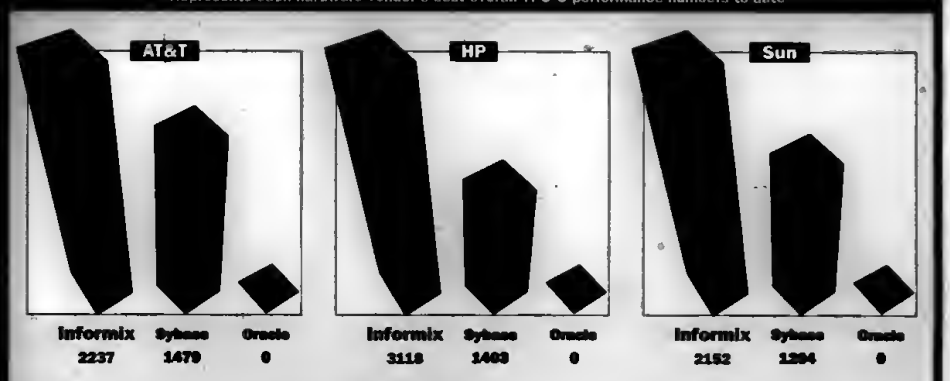

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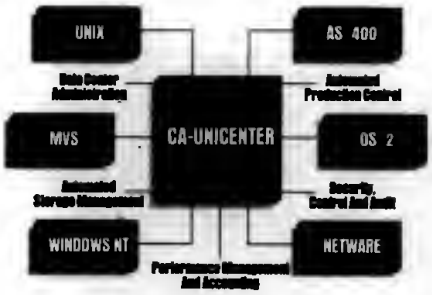
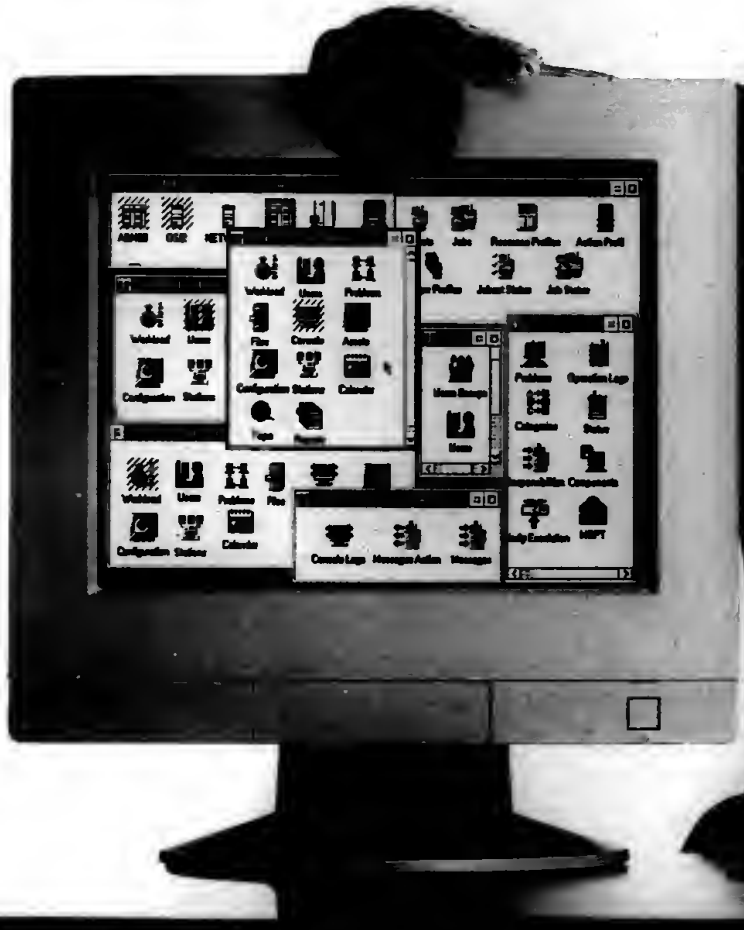


2 Choose A Client/Server Application That's Interoperable, Scalable and Portable.



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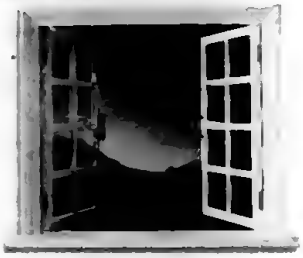

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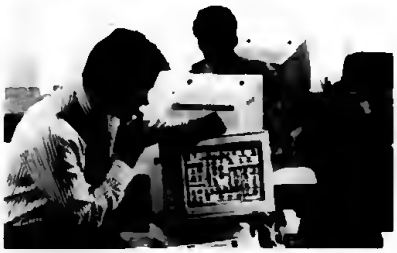

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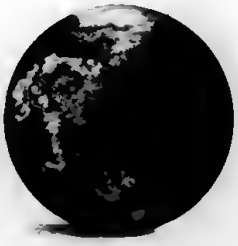

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Sales force automation moves toward stability

By Michael Fitzgerald

■ Two new studies suggest that a more stable sales force automation market is coming but is at least two years away. In the meantime, users are likely to find the market both unpredictable and confusing.

"Sales force automation [is defined] as anything from putting a Microsoft or Lotus suite on a laptop all the way up to having Arthur Andersen build you a custom application for a million dollars," said Sean Feeney, vice president of SNAP Virtual Office Group in Manchester, N.H. SNAP is the main product of Sales Technologies, Inc., a roughly $50 million company seen as the largest vendor in the high-end sales force automation market.

Today, at least 100 companies offer products defined as sales force automation software. The splintered market means that no one vendor dominates. For instance, a new Gartner Group, Inc. report based on 31 leading sales force automation suppliers found that no vendor achieved more than 32% market penetration in any industry segment.

The result has been an extreme level of market confusion that, along with technology limitations, has caused the market to be "stalled among mostly early adopters," said Judy Hodges, an analyst at International Data Corp. (IDC) in Framingham, Mass. Hodges is the author of IDC's 1995 Sales Force Report, due out this week.

Some of that confusion should abate as companies form alliances. For instance, Aurum Software, Inc. in Santa Clara, Calif., recently released SalesTrak 5.1, software that includes an option to support Xcellenet, Inc.'s RemoteWare. Aurum's client software will be better integrated with Xcellenet's back-end server software, which should make it easier for users to use the products in their enterprise information systems.

Further, analysts said several technologies, combined with various market forces, are beginning to push sales force automation software into the mainstream:

- Groupware, which brings more effective communications to dispersed workers. Sales forces currently make up the single largest market for Lotus Development Corp.'s Notes, Hodges said.
- More powerful hardware, which brings with it faster chips, bigger hard drives, color screens and other desktop-like features. This makes it feasible for companies to outfit salespeople with portable systems.
- Vendor missionary efforts that are paying off in converts.
- The need to keep up with competitors who have automated.

Sales pitch

TOTAL MARKET WORTH: $170M	
Company	Market share
Sales Technologies, Atlanta	12%
Fastech, Broomall, Pa.	10.4%
Modatech Systems, Irving, Texas	8.4%
Saratoga Systems, Campbell, Calif.	7.8%
Brock Control Systems, Atlanta	7.3%

Source: International Data Corp., Framingham, Mass.

Long division

But the very nature of the user base — sales representatives — will continue to keep the market splintered, analysts say.

For example, where manufacturing or finance departments at competing companies often use the same software application, "vice presidents of sales have much less of a tendency to replicate other" sales force projects, said Ken Dulaney, a Gartner analyst in Santa Clara, Calif.

This tendency to seek out unique applications causes many companies to shun the open market and build their own applications instead.

"We can make it exactly the way we want it," said Peter Rudolf, manager of support and training at Lutheran Brotherhood Insurance, a Minneapolis-based financial services company that has automated its sales force. It built its own applications, right down to creating letters for specific situations, so users do not need a word processor. Calculations are handled through a homegrown application as well, so users do not need a spreadsheet.

Rudolf said one obvious disadvantage to the company in building its own applications is having to maintain the code. He also noted that more advanced users want their own word processor or spreadsheet.

One thing all observers agree on is that the sales force automation software sector will continue to grow rapidly. The IDC study predicted that the market will grow 23% a year during the next four years, climbing from $185 million last year to $435 million by 1999.

Still, the IDC figures do not include support and service revenue, which can make up 70% of a company's revenue.

Small firms get low-cost on-line access

By Gary H. Anthes
WASHINGTON

Prospective users enthusiastically greeted a new electronic service for commerce last week, saying it would help put small and midsize companies on equal footing with larger firms in international trade.

The International Business Exchange (Ibex) — launched by a consortium led by the U.S. Chamber of Commerce here — allows nontechnical users with modest budgets to find buyers, sellers or investment opportunities with a $250 software package, PC and modem (see box).

Ibex is priced at $2 to $5 per transaction, with no on-line connection fee. "Active users" are likely to spend $50 to $250 per month, according to Ibex sponsors. Sponsors include AT&T Corp., The Dun & Bradstreet Corp., GE Information Services, Inc., SHL Systemhouse, Inc. and the U.S. Chamber of Commerce.

Unlike bulletin boards and databases that must be proactively searched by users, Ibex employs an intelligent agent that seeks information that fits the user's request and profile.

"It's a great idea because it's focused on business only, unlike the internet, which is so vague and confusing," said Tess Moreal, president of AXE Industries, Inc., an exporter of used medical equipment in Arlington, Va. "It opens the world for a very low fee without your having to have an agent or office overseas or do advertising."

An Ibex subscriber enters a detailed company profile and offers to buy, sell or invest. The system continuously matches those offers with counteroffers worldwide. When matches are found, the parties are notified automatically by electronic mail or fax. The next steps involve using Ibex to qualify each other, check credit references, negotiate, close the deal and handle "paperwork" electronically.

"For too long, the revolutionary new way of doing business electronically... has been out of reach of all but the largest and most sophisticated of U.S. firms. But [Ibex will] enable even the smallest enterprise to participate in the global electronic marketplace."

— U.S. Chamber of Commerce President Richard Lesher

"I don't know of anything competitive to this," said Gary Arlen, president of Arlen Communications, Inc., an interactive information systems consulting firm in Bethesda, Md. "I think the idea of the intelligent agent is a breakthrough."

Still, Arlen cautioned that intelligent agents could be a tough sell with some users. "People intellectually have a problem with someone knowing enough about them to represent them as an agent," he said. "And some won't trust the agent to really find the best deal."

Early participants

So far, 37 state and local chambers of commerce and national business organizations in 34 countries have agreed to market Ibex.

"We are certainly going to push this," said David R. Lambert, executive vice president at the American Seed Trade Association in Washington. "It will give our members opportunities they didn't have before. How do you make contact [with overseas buyers]? How do you get your shipment to the coast? How do you get it on a ship? How do you get paid? This helps answer the questions."

Ibex also supports the following functions:

- Confidential questioning and qualifying of business partners.
- Access to Dun & Bradstreet databases of 38 million companies worldwide, including credit and market information on 10 million U.S. companies.
- Electronic access to support services from freight forwarders, banks, customs brokers, lawyers and accountants.

Later releases of Ibex will contain full electronic data interchange capability — including electronic payments — language translation capability and support for video mail, Ibex sponsors said. However, Ibex will not interface with the internet, except for E-mail, until better security features are available, said Mady Jalinoos, president of the Global Business Alliance, which will operate Ibex.

Connecting points

The Ibex client software runs on Windows-based PCs with Intel Corp. 80386 or faster processors. The server software runs on a Unix-based Hewlett-Packard Co. HP 9000 running Sybase, Inc. database software.

The client and server communicate via E-mail to minimize on-line connection costs.

The Ibex server connects to X.400 networks worldwide and communicates by X.400 E-mail over an AT&T frame-relay service using TCP/IP.

— Gary H. Anthes

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Briefs

Video pact unveiled

Microsoft Corp. and PictureTel Corp. have agreed to jointly develop interoperable data conferencing products for Windows. The products will be based on the T.120 standard for data collaboration.

Hughes sold

Whittaker Corp. in Los Angeles will acquire Hughes LAN Systems, Inc. for $52 million. Whittaker plans to fill out its Asynchronous Transfer Mode (ATM) telecommunications product line with Hughes' ATM hub technology, switched Ethernet products and network management software.

SunRiver makes buy

SunRiver Corp. has acquired Applied Digital Data Systems, Inc., a division of AT&T Global Information Systems that produces character and X terminals. SunRiver plans to use Applied Digital's large user base to expand the market for its MultiConsole technology, which lets color, text and graphics run on display terminals.

Stac buys Remserve

Stac Electronics has bought Remserve, Novell, Inc.'s Network backup, archiving and data recovery software. The product was developed by Crossware Development in San Diego and marketed by Rememory Corp. in Costa Mesa, Calif.

SHORT TAKES A securities fraud lawsuit filed against Legent Corp. in Herndon, Va., has been dismissed due to insufficient evidence. ... Max D. Hopper, former senior vice president of AMR Corp. and chairman of The Sabre Group, has joined Convex Computer Corp.'s board. ... Network management tool vendor Peregrine Systems, Inc. in Carlsbad, Calif., has acquired Boston-based Bridge Technology, Inc., a developer of database replication and monitoring software.

Cray Computer ends its quest

Lost financing halts production of Cray-4 system

By Craig Stedman

After six years of walking a tightrope, Cray Computer Corp. finally fell off.

This latest venture of supercomputer pioneer Seymour Cray shut down and filed for Chapter 11 bankruptcy protection in late March after an expected $20 million cash infusion collapsed. The Colorado Springs firm needed the additional financing to bring its highly tonted Cray-4 system to market.

Sources close to Cray Computer said the management team is hoping to continue the Cray-4 project, but industry watchers are skeptical that it can be resurrected. "I think this is probably the end of the line," said Jeff Liebl, a research analyst at Smaby Group, Inc. in Minneapolis.

Seymour Cray *blames Cray Computer's failure on bad timing*

A 1989 spin-off from supercomputer market leader Cray Research, Inc., Cray Computer was plagued by product glitches and never actually sold a machine. However, Seymour Cray's reputation helped bring in more than $200 million in funding, and the company was just months away from completing the Cray-4.

Supercomputer users bemoaned the loss of an alternative to Cray Research's T90 high-end family, especially because Cray Computer claimed that the Cray-4 would provide competitive performance for about 40% less than what the T90 costs.

"The price/performance really looked good," said Bill Buzbee, director of the scientific computing division at the National Center for Atmospheric Research (NCAR) in Boulder, Colo. Based on list prices, NCAR estimated that the Cray-4 would have cost about $500,000 per GFLOP, compared with $750,000 for the T90. And the Cray-4 processors were compact enough to "fit in your lunch box," Buzbee added.

NCAR was the only customer to use the Cray-3, which it installed in 1993 as a demonstration system. The machine had 95% uptime and 85% utilization during the past six months, but it was turned off after the Chapter 11 filing because it belongs to Cray Computer, Buzbee said.

The Cray-4 appeared to be "a pretty formidable design," said Dick Sherman, president of RCI Ltd., a multivendor supercomputer user group in Minneapolis. Cray Computer's demise "is kind of a sad deal because the market is not oversaturated with vendors," he said.

In a letter to Cray Computer's employees announcing the closing of the company, Seymour Cray said the company's problem was "basically one of timing. The business world, and our government, are in a cost-cutting mode. ... In a different decade, we probably would have succeeded."

Cray Computer had $20.1 million in cash at the start of 1994, but that dwindled to just $2.4 million by year's end. The company sold about $2.5 million worth of stock in January, with Seymour Cray buying half of it himself. But the larger financing needed to fund it through this year unraveled at the last minute.

Despite its shaky finances, Cray Computer did not cut back to conserve cash, according to sources close to the company. "They felt they had to keep doing it with a 100% effort, so they hit the wall going 100 miles per hour," said one source familiar with the company's operations.

Bumpy ride

CRAY COMPUTER'S SIX-YEAR HISTORY WAS MARKED BY PRODUCT DELAYS THAT LEFT THE COMPANY STRAPPED FOR CASH

November 1989: Cray Computer spun off from Cray Research

Mid-1990: Target date missed for demonstrating Cray-3 system

December 1991: Initial Cray-3 order canceled due to continuing delays

November 1993: Cray-3 finally stabilized but demand had evaporated

November 1994: Cray-4 detailed and promised for 1995 shipment

March 1995: Chapter 11 petition filed after planned financing collapses

Market rallies behind Adobe's partnerships

By Lisa Picarille

■ Adobe Systems, Inc.'s stock closed at a record high last Tuesday as the Mountain View, Calif., company announced alliances with IBM and Netscape Communications Corp.

The deals are designed to establish Adobe's Acrobat as the de facto standard for document and data exchange.

Unveiled at last week's Seybold Seminars '95 in Boston, the alliance has Adobe and IBM agreeing to jointly develop printing and publishing systems based on Adobe's Acrobat and PostScript programs and IBM's Advanced Function Presentation (AFP) architecture.

Acrobat, which came out in early 1993, has document creation and reader portions that let users exchange and view electronic documents with the layout, graphics and type appearing exactly as they did in the originals.

PostScript is Adobe's decade-old page description language and a de facto standard. AFP is IBM's software for managing high-volume printing.

For users, this agreement aims to provide a consistent and integrated method for viewing, printing and archiving documents.

As part of the deal, Adobe agreed to port Acrobat to IBM's OS/2 Warp and the still unshipped OS/2 for the PowerPC. In turn, IBM will preload the Acrobat Reader portion of the program onto the majority of its desktop PCs beginning this fall. Acrobat is currently available on DOS, Windows, Macintosh and Unix systems.

Taking flight

As recently as March 20, Adobe's stock was trading at about $37 a share. After the deals with IBM and Netscape were announced last week, the stock zoomed to $50.52 a share.

Big steps

In a related move, Adobe said Acrobat will be integrated into Netscape's popular program for browsing the World-Wide Web. Although the Netscape deal is nonexclusive, Adobe reportedly will this week purchase an equity stake in the Mountain View, Calif., developer, according to sources close to Adobe. Both companies declined to comment.

The benefit to users is the potential for streamlining the way documents are exchanged over the Internet.

In addition, Microsoft Corp. demonstrated its document-creation program, code-named Blackbird, which will be used only on the Microsoft Network. The Redmond, Wash., developer's on-line service is slated for release in August.

Microsoft's entry into the growing market — which includes Acrobat, Envoy from Novell, Inc. division WordPerfect, Replica from Farallon Computing, Inc. and Common Ground from No Hands Software, Inc. — is another sign of the growing momentum in on-line publishing.

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It's déjà vu. You've been here before.

The hardware is different. The systems are different. But the problems look awfully familiar. Operations management, resource management, storage management, configuration management, application management, problem management. Doesn't some of this stuff go back to Univac II? And yet, here you are at square one, spending way too much time on the most mundane part of your job. If only there was some management software out there that actually helped. Well, actually, there is. At Legent, we've put together the most extensive set of industrial-strength, distributed systems management tools available. We've also developed an open architecture called XPE that, according to some of the toughest analysts in the business, is pretty remarkable. As a result, our software works together across almost anything you can wire together, regardless of function or platform, from mainframes to UNIX servers to PC LANs. Which means you can manage your systems from the platform of your choice, something our customers tell us has definitely made their lives easier. Think of it: systems management tools that really work. It's déjà vu all over again.

Flaws 95

While visiting Apple's headquarters in January, I asked a senior executive why he thought Windows 95 is so late. He answered, "I'm not sure, but there *has* to be some fundamental flaw."

Last week the test labs of two leading PC publications enumerated not one but a host of flaws in what Microsoft shipped as its final beta, or prerelease version, of Windows' successor.

To the jaded millions who have come to accept the PC software industry's hideous record of delivering bug-laden software, these revelations are par for the course.

But to the IS manager supporting a major organization, Windows 95 in its current state is an unmitigated mess that is just four months from a promised ship date. Here's a sample of what the lab tests turned up:

- The system freezes when multitasking the 32-bit applications it was designed to support.
- The complete backward compatibility Microsoft has touted might not be feasible without great performance compromises.
- The pretty user interface is also different from that of Windows, which will translate into training time.

This last point emphasizes the greatest potential flaw in Windows 95 — not the niggling technical problems that Microsoft may well iron out, but the cost of upgrading vs. the benefit of doing so.

As we pointed out in our lead news story last week, Windows 95 is a RAM bog. It will run on 4M bytes of RAM, as Microsoft said. But it won't do much. Better to upgrade to 12M bytes, or even better, 16M bytes. Do you know what that will cost you for hundreds or even thousands of corporate PCs? Yes, you do indeed.

Windows 95 applications will eat up memory like a whale cruising through krill. Add plenty of it to your "to buy" list. And let's not forget to expand network capacity as well as storage management and network management outlays.

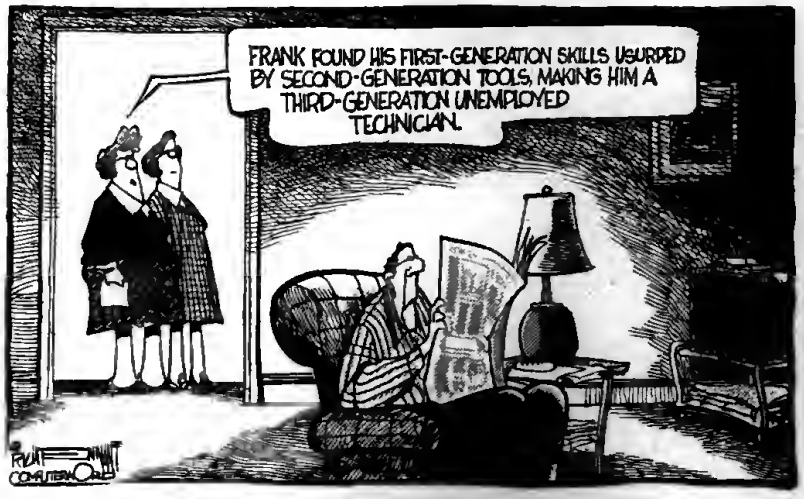
These and other hardware and software purchases, however, will pale next to the costs of training everyone — from network administrators to installers to programmers to end users — to become functional in the Windows 95 world.

So the IS manager — the corporation's only voice of reason above the ear-splitting din emanating from ever-demanding end users and the marketing departments of computer vendors — will have to carefully formulate and analyze the $64 million question: "What will be the return on this guaranteed-to-be-prodigious investment?"

Well here's a guarantee: Most such ROI calculations done in the next 12 to 24 months will be hard-pressed to justify large-scale Windows 95 migrations, particularly if Microsoft has to strip out some promised features to meet performance and compatibility requirements. This ultimately will prove the greatest flaw in this extraordinarily complex piece of technology.

Bill Laberis

Bill Laberis
Internet: *blaberis@cw.com*



A membership wake-up call

The points made by Julia King and Joseph Maglitta in "Associations fight against declining memberships" [CW, Feb. 13] are representative of what has been happening in computer-related professional societies in the past decade.

Perhaps the publication of articles like this one will serve as a wake-up call to computing professionals, who are needed by their professional associations.

The effort to communicate legislation that affects the profession and to keep educational offerings current requires participation by members.

Professional associations can play an important role in the advancement of the professions only if the professionals take some time to serve.

Oveta Popjoy
Baltimore

Hacking teaches many lessons

Regarding "Hackerama" [CW, March 6]:

The rise of the hacker culture is both puzzling and disturbing. Nevertheless, the cost of these attacks seems almost a fair trade-off for the service — yes, service — they provide.

Hackers do not create a lack of security; they exploit and identify it. By doing so, they promote better safeguards. What other stimulus (short of disaster) would so effectively motivate efforts to improve security measures?

If the hacker culture dissipated, the result would be a sense of false security and complacency. It is always tempting to bemoan a current suffering. But an illness can act to strengthen the immune system.

Ardy Hagen
University Video Communications
Palo Alto, Calif.

It seems that the issue between Mr. Laberis and his son ["Hackerama," CW, March 6] is whether problem solving is a creative/intuitive activity or a logical process, along with a semantic twist: hacker as intuitive problem solver vs. hacker as breaking and entering specialist.

Part of the hacker mystique is the seat-of-the-pants outsider outgunning Big Brother. The opposing image of the conservative suit-attired corporate clone has absolutely zero appeal to adolescent rebels.

Perhaps the Dad Laberises of the world need to recognize the futility of lectures on the morality of hacking given the powerful symbolic attraction for youth and countercultures. Instead, we need to focus on the creative and innovative amongst the corporate cultures to effectively counteract the attraction for disruptive behavior.

Michael MacDonald
American President Lines
Oakland, Calif.

In praise of free software

Thank you for "Alpha systems targeted for Unix variant" [CW, March 27]. Free software and those that support it are not often given the credit they deserve, and Linux certainly deserves credit for popularizing free Unix.

There is also another free Unix variant already running on the Alpha: NetBSD. NetBSD is arguably the most portable operating system available today, with ports to the 386/486/Pentium, 68k[illegible], SPARC, and Alpha, and a VAX port in progress. In many cases, NetBSD offers binary compatibility with existing operating systems. And for those interested in other free software, NetBSD's Posix and 4.4BSD compatibility supports most free software. Kudos to the dedicated few who bring us free software and to *Computerworld* for giving them a moment in the sun.

Gary D. Duzan
Wellfleet, Mass.

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- (a) Solaris
- (b) Netware
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- (d) Unix
- (e) Mac OS
- (f) Windows NT
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Taking the trade show on-line

Elisabeth Horwitt

Last month's GroupWare '95 conference in Boston provided some convincing arguments for users to adopt collaborative technology as a vehicle for sharing expertise, even when they are not all at the same location.

Some of the more dramatic presentations were, however, entirely unintentional on the part of the sponsors. Indeed, the conference was a showcase of no-shows, shuffled scheduling and misdirected and miffed attendees.

The problems started right off, when keynote speaker Peter Keen failed to show up at the podium at 9 a.m. on Monday. We were told he slipped on ice. It got worse. At 11:30 a.m., Frank Smith from Ernst & Young was unable to give his session on "Groupware for Heterogeneous Architectures." His replacement had his slides but clearly not his notes or his ideas.

Other glitches were less glaring but annoying nevertheless.

Now, wouldn't it have been great if the GroupWare conference folks had access to the technology presented in their own sessions? The ideal remedy to the Keen and Smith debacles would have been a videoconferencing or multimedia system that enabled the absent speakers to give their speeches and field questions while visible on the auditorium screen.

Granted, PC-based multimedia systems are not yet ubiquitous enough to act as backup systems for incapacitated or stranded speakers. I'll bet they will be soon, though.

Meanwhile, conference groups should consider a more readily available workgroup technology — on-line forums — as a complement to, or substitute for, the traditional conference.

Participants would simply log on to the Internet or an on-line service such as CompuServe, then enter an electronic "room" where the speaker is holding forth.

> *Wouldn't it have been great if the GroupWare conference folks had access to the technology presented in their own sessions.*

The most obvious advantage of this setup would be what it would save participants in travel time and expenses. Furthermore, hot speakers, and their audiences, are more likely to be able to sandwich such a conference into their busy schedules.

In addition, a well-engineered session would allow participants far more interaction with each speaker than your typical podium. Conversational threads could actually extend over a period of days.

This would not put conference organizers out of business. Collaborative sessions would need the same organization, as well as a capable moderator, as physical space conferences do.

The idea is already catching on: Next year, the Internet will be the site of a World Exposition of global information network technology, hosted by the Internet Multicasting Service in Washington and endorsed (natch) by the Clinton administration.

Any PC user with a modem can attend without undergoing convention trip hassles such as canceled flights and 3-hour-old coffee. Not to mention sore feet. Would-be attendees of one GroupWare '95 session were misdirected first to the banquet hall, then to a room another conference group had taken over.

Is there such a thing as having your electronic forum space pre-empted by someone else? I'd really like to know.

Horwitt is a freelance writer in Newton, Mass. Her CompuServe address is 75244,1666

Trumped-up profits do a disservice

Paul A. Strassmann

Don't let numbers fool you. I recently completed a tabulation of the detailed profitability and productivity results of 1,000 U.S. industrial corporations from 1983 to 1993. The average return on capital for this period was 9.44%, while the cost of capital was 12.04%. On average, it would have been profitable to invest money in any project that yielded more than 12.04%.

> *One cannot claim profitability by overcoming neglect.*

But averages never tell the entire story. The single most profitable year for an industry was a 34.5% gain. That was enjoyed by the entertainment industry in 1988, largely reflecting temporary gains from casinos.

Considering the rather unspectacular returns realized by U.S. corporations, it was with a sense of excitement that I turned to another publication for this January's industry awards for the most profitable return-on-investment (ROI) from information technology. The opportunity to uncover for *Computerworld* readers extraordinary new opportunities was prompted by the ROI scores of the Top 6 winners, who reported astronomical gains of 145%, 248%, 496%, 578%, 4,028% and, believe it or not, 14,659% from installing innovative computer applications. The latter was reported by a major retailer.

When you confront something that is 420 times better than the best you have ever seen before, it pays to check the facts. However, the calculations were impeccable. Dividing the claimed benefits of $365 million by an expenditure of only $2.49 million for technology purchases, development, maintenance and operations resulted in an exact match for the 14,659% figure.

On the cost side, the $2.49 million bought a system that allowed headquarters to review sales and inventory positions daily. That allowed corporate staff to keep up listed prices and replenish fast-moving items, while lowering prices and inventory for slow-moving items. For a corporation with 2,350 stores, spending only $2.49 million on improved sales and inventory reporting looked like a bargain.

This left me with the task of understanding the $365 million of benefits explained as "reduced inventory, reduced operating costs and enhanced revenue." In other words, the daily sales and inventory reports made the company $365 million smarter.

This reasoning reminds me of a story about the engineer who went to Africa, contracted amoebic dysentery and was hospitalized for two months, which cost $35,000. His replacement took with him a $50 water filter and completed the job. The second engineer claimed that the water filtration widget was worth a 70,000% ROI.

One cannot claim profitability by overcoming neglect. The return on the water filter is the difference between its cost and alternative solutions such as drinking only boiled water, soda or wine. Similarly, if merchandising people do not pay attention to sales and inventory levels, the return on the computer investment is the difference between improving management practices by the next least costly means.

Contests that trumpet astronomical ROIs do a great disservice to IS managers and the industry in general. They inflate unwarranted expectations, encourage laughable manipulations of numbers and diminish credibility. They devalue the merits of solid accomplishments. After all, earning only 34.5% is worth bragging about, provided it is legitimate, provable and reasonably risk-free.

Strassmann is a consultant in New Canaan, Conn. His Internet address is Postmaster@strassmann.com.

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NEWS TRENDS OPINIONS AND IDEAS FOR INFORMATION MANAGERS

HOW TO BUILD, MANAGE, AND EXPLOIT A DATA WAREHOUSE *(WE'LL GIVE YOU THE BLUEPRINT FREE)*

The strategy, says Rudy Betancourt – SAS Program Manager, Data Warehousing – can be found in software that:

- **Offers a single-tool approach for integrating all the core technologies involved in data warehousing, from back-end access to legacy systems to front-end decision support and business intelligence capabilities.**
- **Holds down costs by capitalizing on resources you already have...and by seriously re-evaluating the need for an expensive RDBMS.**

To meet the needs of business decision makers, information managers are looking for ways to provide direct access to a wide range of corporate data stored in many different sources and data formats.

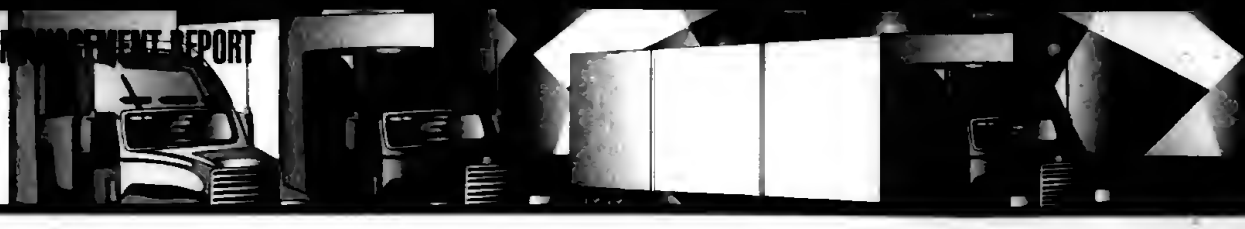
In doing so, IT professionals face the challenge of making data easily accessible, without impacting the performance of vital operational systems or compromising data security. The solution they're turning to is data warehousing.

"Data warehousing is a strategy and a method for physically and logically separating operational data from decision support data. This decision support data is derived from the operational data, but is continually refreshed and readily accessible to end users, who can get to the business information they need without impacting operational systems," says Betancourt.

"At SAS Institute, we're helping business decision makers gain access to legacy data, then integrate and transform that data into meaningful information."

SAS Institute is "the only vendor out there that's providing a complete end-to-end software solution for accessing, managing, analyzing, and presenting data," asserts Betancourt, who points to the SAS® System of software's leadership role in three major areas.

(continued on next page)



ACCESS TO LEGACY DATA AND TRANSFORMATION TOOLS

"The SAS System grew up in the mainframe environment," says Betancourt, who quickly adds that SAS software's hardware-independent structure now takes it seamlessly from Big Iron to your favorite desktop. "We have a strong affinity for legacy data such as IMS, IDMS, CA-DATACOM/DB®, DB2®, VSAM, and sequential files. And we've made these data stores readily accessible, since there's a substantial investment there."

Direct links to a variety of data sources are built into the SAS System, together with a fourth-generation language that makes transforming data as straightforward as possible. In fact, SAS software provides a relational model for data management similar to the commercial relational database management system (RDBMS) suppliers.

TOOLS FOR MANAGING THE DATA WAREHOUSE

"In setting up a data warehouse, many customers assume their first decision is to buy a relational database management system to store the data for the data warehouse," says Betancourt. "Truth is, data warehousing simply does not require many of the features of a database management system."

He explains that "relational database management systems have been optimized for online transaction processing – with facilities such as two-phase commit, rollback and recovery, and other database features. Data warehouses, on the other hand, are intended to be *read only*. There is no update that takes place from the user perspective. Data warehouses are loaded from transaction systems and periodically refreshed from the incremental transactions. Many of the facilities associated with traditional database management systems are merely overhead in a data warehousing environment."

Randy Betancourt, SAS Institute Program Manager for Data Warehousing

Betancourt adds that SAS data structures are relational in nature and have all the requisite features necessary for data warehousing including indexing, compression, and a security model.

"SAS software has the right capabilities, but doesn't consume overhead for facilities that are not needed," he explains. "Coupled with the fact that most companies have SAS software already installed, you could say many organizations are well on the way in reaping the benefits of data warehousing without having to invest in new technologies. And, even if an organization is licensing SAS software for the purpose of data warehousing, the cost – in relation to the cost of a full-fledged database management system – is much less."

PLUS WAYS THE NEWL DATA

"The net takeaway from building a with information to make better, m says Betancourt. "SAS Institute ha decision support. There is no other delivering critical business informa enterprise."

He adds that most vendors offerin house support Windows™, and oc that SAS Institute's software runs hardware platforms from the desk

"Any application written in one en in any of the others," Betancourt application running where it mak viding a complete end-to-end solu SAS System addresses an organiza as well."

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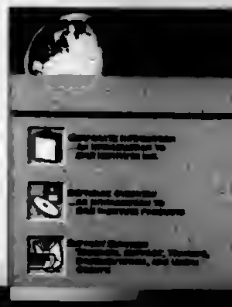

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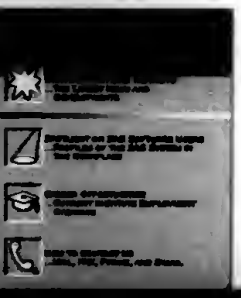

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Spreadsheets mature into sophisticated business tool

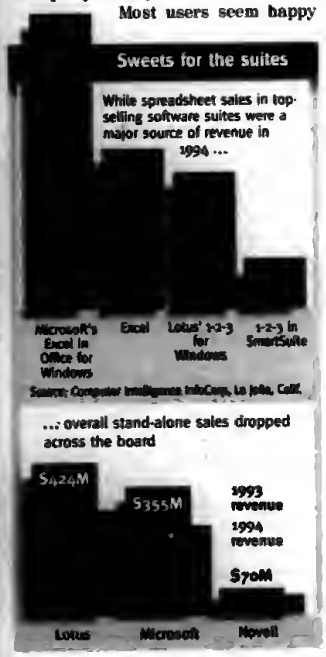
By Tim Ouellette

Spreadsheets are on almost every desktop in the business world today. In fact, they were often the reason business users bought PCs in the first place. Now that spreadsheets have been enhanced for years, are users looking for even more new features?

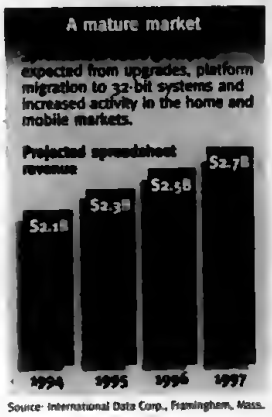
The answer for most users seems to be no. In general, they are happy with the feature sets in today's spreadsheets, although they say some niche areas could be improved by additional features or third-party developers.

Most users seem happy with the leading products from Microsoft Corp., Lotus Development Corp. and Novell, Inc., according to Bryan Fukuda, an analyst at Dataquest, Inc. in San Jose, Calif. Users are looking more for cosmetic, ease-of-use changes, he said.

Most of the desired features are now available, but they are sprinkled among the three main competitors. "I like some features from different products," said David Burkleo of the Oklahoma City PC Users Group. "I'd like to have them all together — roll the best of each into one."



Closer Look
SPREADSHEETS



Give them more

Then there are the more specific requests to have the spreadsheet go beyond its function as a calculation tool. Betty Brooks, a spreadsheet consultant and product review coordinator at the Houston Area League of PC Users, would like to see the return of a feature from Lotus' Symphony office package that lets users page up and down through a database form while they are in the spreadsheet. To do the same thing in Lotus' 1-2-3 requires writing a complicated macro.

"It helps people enter data easier," she said. "It would keep people out of the database itself, which to me is a basic feature. I can't believe it wasn't added into any other product."

Third-party add-in tools have carved a niche for themselves among the specialized tasks spreadsheets may not do well enough to suit users' tastes. Add-in software loads with the spreadsheet and appears as a button on an application's tool bar.

One add-in, for example, tracks all worksheet versions. "It's a pain in the butt when working with spreadsheets and you have all kinds of different files along with a cluttered directory structure," said Jeff DeFord, network administrator at Honeywell Microswitch Division in Richardson, Texas.

Softool Corp. in Goleta, Calif., addresses this issue with CCC QuikTrak. It lets users create long file names and tracks versions by storing only the changes between spreadsheets instead of storing the whole file.

DeFord manages tasks with a large Excel spreadsheet, which he puts together quarterly. CCC QuickTrak compares the old version with new versions and highlights the differences on-screen. Previously, DeFord labored through printouts with a highlighter and colored pens to do the same thing.

Many users also require advanced graphics to display — in a reader-friendly form — the rows and columns of information in their spreadsheet. One example is Harvard ChartXL from Software Publishing Corp. in Santa Clara, Calif., which is best known for its Harvard Graphics software. Harvard ChartXL, which works within Excel and 1-2-3, boasts more than 180 business, statistical and technical chart types.

"It has very, very extensive charting," said Chris LeTocq, an analyst at Softracks Software Research in Los Altos, Calif. Since chart selection in most spreadsheets is somewhat anemic, LeTocq said he is surprised that there are not more add-in charting packages for the other spreadsheets — especially given users' desires to make their presentations look different.

At Martin Marietta Utility Services in Paducah, Ky., environmental scientist Blake Burchell uses Harvard ChartXL to communicate his spreadsheet calculations to management. He praised the ability to stay within Excel to generate graphics instead of moving in and out of two applications.

The huge installed base of spreadsheet users gives add-in developers a

Spreadsheets, *page 50*

Working inside

For some applications, spreadsheet features are best used when integrated within the application instead of as a separate program, which takes up space. The use of component software makes it easier for after-market developers to provide integrated add-in functionality.

Darryll Petrancuri, a project manager at Automated Catalogue Services in Wayne, Pa., used Visual Tools, Inc.'s Formula One spreadsheet component to develop a purchase order management system. The component provides a simple subset of Excel functionality for C and C++ developers and is compatible with Excel.

Petrancuri said that while some users may think Microsoft's Object Linking and Embedding (OLE) is a better way to move spreadsheet functionality into an application, component-oriented add-ins cost less overall.

"We can't dictate to our users, 'Thou shalt have Excel, along with a certain box, to make OLE work.' Formula One gives Excel compatibility in a way that does not have a learning curve associated with it," Petrancuri said.

He added that someone who has worked in Excel already can use the same data in a Visual Basic application because Formula One is written as a Dynamic Link Library.

—Tim Ouellette

Spreadsheets calculate for workgroups

With the success of its Notes groupware, Lotus sees a workgroup future for spreadsheets. "Industry has made the individual more productive. The return on investment will be when we can deliver a tool that can help people do more as part of the team process," said Jeff Anderhalm, director of spreadsheet marketing at Lotus.

First Albany Corp. is leveraging Notes and 1-2-3 to help deliver timely investment analysis to its customers. Prior to the marriage of the two applications, investment reports lacked consistency and were time-consuming to prepare, according to Barry McCurdy, senior vice president and director at the Albany, N.Y., firm.

Information on the past and future financial performance of profiled companies is maintained as projections in a spreadsheet. Certain cells are made part of the Notes databases and serve as the basis for the investment reports, which are created through Notes' Field Exchange.

Analysts can import updated information and spreadsheet analysis directly into the report as they can spend more time on the report narrative instead of performing data entry. "Now it takes 15 seconds instead of a half hour," McCurdy said. "The analysts can do their write-ups instead of entering numbers that are already old into the report." —Tim Ouellette

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Faster Pentium inspires new systems

By Jaikumar Vijayan

Speed thrills, but it's the smarts that really matter.

This seems to be the credo of a rapidly growing number of PC vendors that have begun to focus on desktop and asset management in the fast-evolving Pentium marketplace.

Last week, for instance, Dell Computer Corp. in Austin, Texas, became the latest vendor to announce high-end Pentium-based business desktops with integrated network management software and tools. This allows administrators to manage networked assets and inventory.

Dell's OptiPlex X500 family of "Smart PCs" includes a graphical user interface designed to give users access to system information down to the component level, according to Dell. The interface, called Dell Inspector, is Desktop Management Interface (DMI)-compliant and allows network administrators to perform centralized tracking to access, monitor and configure data on other DMI-compliant systems.

Dell's Inspector, which will be shipped standard on all new OptiPlex systems, will snap into and work with existing network-level management packages such as Intel Corp.'s LANDesk and Hewlett-Packard Co.'s OpenView.

"Our main focus is increased manageability and integration," said Eric Harslem, senior vice president at Dell.

One example of this changed focus is Dell's recent technology-sharing agreement with 3Com Corp. in Santa Clara, Calif., designed to integrate 3Com products into Dell systems.

Systems based on Intel's recently announced 120-MHz Pentium processor include:

	HP Vectra VL Series 3	Dell OptiPlex X5120	Gateway P5/120
Hard drive	420M bytes	270M bytes	1G byte
RAM	8M bytes (up to 192M bytes)	8M bytes (up to 128M bytes)	16M bytes
Second-level cache	256K bytes	256K bytes	256K bytes
Bus	PCI	PCI/ISA	PCI
Video RAM	Up to 2M bytes	Up to 2M bytes	Up to 2M bytes
Price	$2,650 (does not include monitor)	$2,585 (includes monitor)	$3,999 (includes monitor, quad-speed CD-ROM, integrated telephony and communications)

Playing catch up

"Desktop manageability has become a key differentiator in the market today," said Richard Zwetchkenbaum, an analyst at International Data Corp. in Framingham, Mass. He noted that Dell is trying to catch up with vendors such as Houston-based Compaq Computer Corp., which already offers these kinds of capabilities.

Dell last week also joined the growing list of vendors that have already announced systems based on Intel's just-released 120-MHz Pentium processor. The company's OptiPlex X5120 systems, featuring Peripheral Component Interconnect (PCI) technology, burst-mode cache, 8M bytes of RAM and up to a 1G-byte hard drive, will come in at the top of Dell's OptiPlex line of business systems (see chart).

So far, vendors that have announced products based on the new chip include HP, Compaq, Gateway 2000, Inc., Micron Computer, Inc. and Zeos International, Inc.

For users, the result of Intel's frenetic Pentium push is the start of a rapid migration of what was recently seen as high-end processor performance down to mainstream lower-end price points, said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

"The 120-MHz is essentially a faster Pentium processor, but as long as the cache size remains the same" as that of the existing Pentium processors, the chip will not provide substantial performance increases, McCarron said.

Never forget price

However, like the chips preceding it, the 120-MHz Pentium will put price pressure on the existing Pentium chips, McCarron said.

While welcoming the rapidly increasing number of desktop choices available, some users said the 486 chip provides all the processing power they need.

"Frankly, I think at this stage vendors are going a little crazy," said Jay D. Markshied, a microcomputer analyst at Charmer Industries, Inc. in Astoria, N.Y. "At the moment, the vast majority of users at my site don't need a Pentium. There frankly hasn't been enough of an improvement, apart from pure speed, to justify extra money for the chips."

Reporter's Notebook

Microsoft's Windows Hardware Engineering Conference in San Francisco — an annual and normally unexciting gathering of hardware developers — did not disappoint.

However, for those who follow developments in the hard underbelly of the industry, there were several announcements of note.

At the top of the list, several major players, led by Intel and Microsoft, announced a preliminary specification for the Universal Serial Bus (USB) that they hope will put the venerable RS-232C interface out of its misery.

A 0.9 draft of the USB specification was expected by the end of last week; a final version is targeted for June. "We expect product announcements by Fall Comdex, with volume shipments in the first quarter of 1996," an Intel spokesman said.

Additionally, USB developer kits should be available in the third quarter, and Intel intends to make the spec a standard feature of chip sets in the fourth quarter.

The new standard will use a small rectangular plug that will make it easier for laptop manufacturers, among others, to cram more interfaces onto the back of PCs, said Carl Stork, Microsoft's director of Windows hardware programs.

USB functions in a manner similar to SCSI, allowing users to daisy-chain a wide number of peripheral devices into a "tiered star" topology that has a 12M bit/sec. transmission bandwidth. Up to 63 devices — including modems, keyboards, monitors, mice and printers — can be connected through a single port.

In its favor

Proponents say USB has some important advantages over SCSI. For one thing, the bus will be completely Plug and Play compatible, enabling devices plugged into the USB to be automatically configured and recognized by the system.

"There are some technical arguments [about USB], but if Intel puts it into chip sets, it's going to be a moot question," said Michael Slater, publisher and editorial director of the "Microprocessor Report," an industry newsletter.

Compaq, Digital, NEC, IBM and Northern Telecom helped develop the USB specification.

In other news on the Plug and Play front, Stork acknowledged that the industry is waiting for one important piece to the puzzle. That piece, Windows 95, will support Plug and Play when the operating system finally ships in August.

"We will ship in the commercial release of Windows 95 about 2,000 drivers for pieces of hardware," Stork said.

— Stuart J. Johnston

Keyboard lawsuits lose ground

By Mitch Betts

The news has not been good for end users who claim computer vendors are liable for keyboard-related injuries such as carpal tunnel syndrome.

The U.S. House of Representatives last month passed product liability reform legislation that caps punitive damages at $250,000 and limits lawsuit filings to within 15 years of a product's introduction.

More importantly, plaintiffs have lost the two cases — among the more than the 2,000 filed around the country — that have actually gone to jury trial.

On March 8, a jury in Hastings, Minn., cleared IBM of liability for the disabling injuries of former school registrar Nancy Urbanski. Urbanski's lawyers argued that IBM knew about keyboard-related repetitive stress injuries among its own employees and therefore should have warned customers. IBM prevailed by arguing it is common sense that items such as keyboards, tennis rackets and tools can be harmful if overused, so IBM had no duty to warn users.

Co-defendant Apple Computer, Inc. was forced to settle the suit because an outside counsel failed to turn over key documents before the trial. However, after the judge instructed the jury to consider the merits of the case, Apple was cleared of the negligence charges, too.

Last year, Compaq Computer Corp. successfully argued in a state court in Houston that there is no scientific evidence that its keyboard was to blame for a legal secretary's crippling wrist injury.

Legal experts said it is too early to say that the keyboard lawsuits — once headlined as "the asbestos case of the 1990s" — are doomed. It would take at least a dozen cases to establish a real trend in an area that is still in its infancy, they said.

"It's difficult to say that two cases is a trend, but [the failure of the first two test cases] could quiet the fervor of the plaintiffs' bar," said Lawrence E. Carnevale, a product liability defense lawyer in New York.

"Because the per-claim value [in the keyboard cases] is fairly low, they're only lucrative if you win lots of them," Carnevale explained.

It is not unusual for early test cases to fail. With each case, plaintiffs' lawyers collect and share more internal company documents that could be key to victory, experts said.

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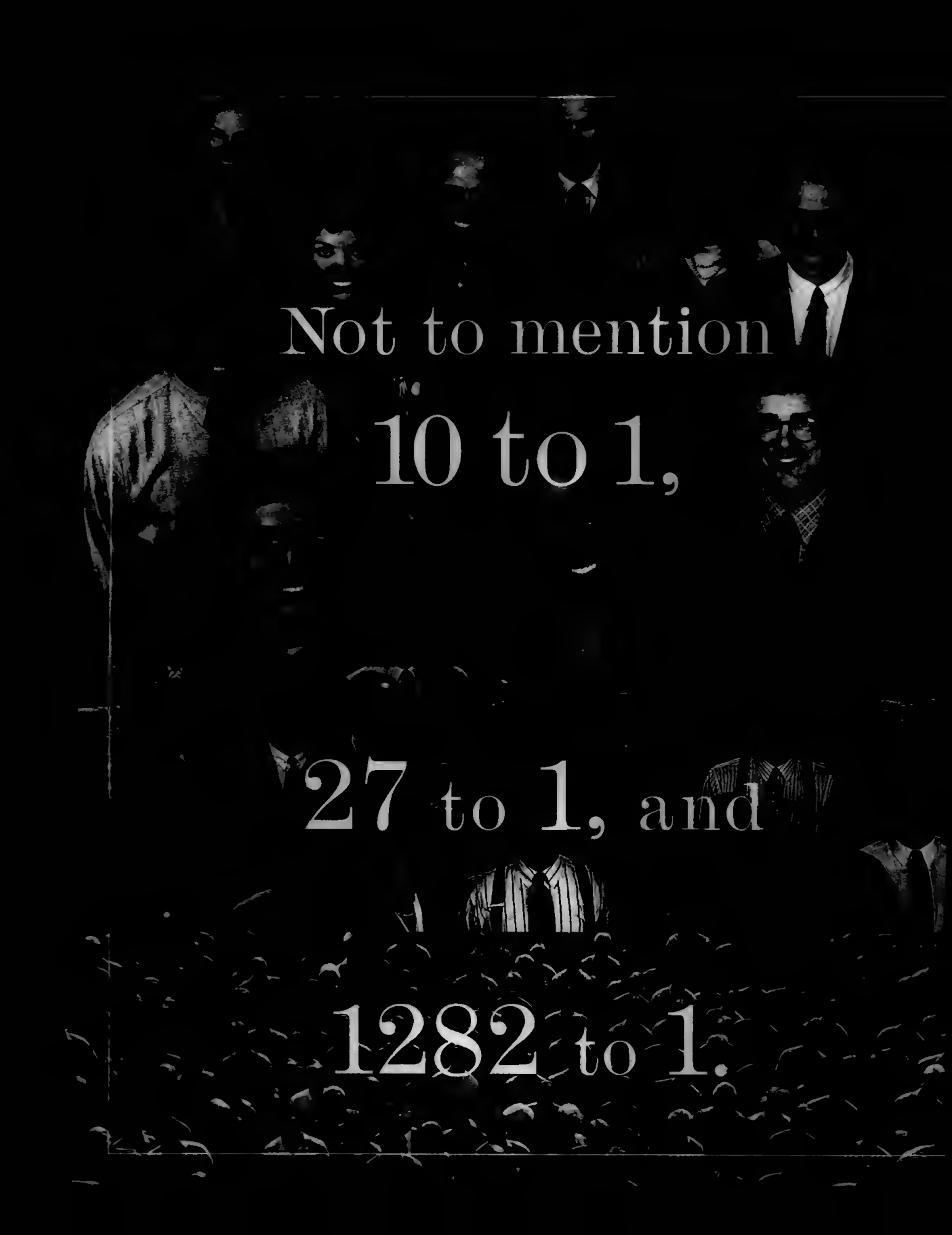
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Apple prepares to move to PCI bus

By Lisa Picarille

Slowly but surely, Apple Computer, Inc. is forcing a migration to its Power Macintosh. Its latest nudge in that direction includes summer plans to release a revamped systems family that will use a different bus architecture. This will require users to run an updated version of the operating system.

Apple's move to support the industry standard Peripheral Component Interconnect (PCI) bus rather than its own proprietary NuBus architecture will first surface in the Power Surge family of PowerPC 604-based systems. The family will include three models: Tsunami, Nitro and TNT.

Users of these systems will be required to run System 7.5.2, code-named Marconi, which is due out this summer.

To make the move from NuBus to PCI, Apple had to make substantial modifications to Mac OS such as rewriting the Slot and Display managers, according to sources familiar with Apple's plans.

Summer Macintoshes to drive PCI bus

Due out this summer:

- Three PowerPC 604-based PCI bus Macintoshes
- Apple's Power Surge line which includes: Tsunami, Nitro and TNT

PCI benefits:

- Industry-accepted standard
- Gives users more flexibility and capabilities via graphics cards, accelerators and video and fax boards
- 300% faster than Apple's current NuBus 90 architecture.

According to Pieter Hartsook, editor of "The Hartsook Letter," an industry newsletter in Alameda, Calif., the change is significant.

"Marconi is the first system-level software that really leverages the Power Mac and should prove to be significant in networking environments," Hartsook said.

As an industry standard, PCI gives users a wider range of choices — and possibly lower price tags — on add-ins such as graphics cards, video boards and accelerators. Previously, users had to purchase components designed specifically for each Macintosh model.

Thus far, a slew of developers — including Radius, Inc., Avid Technology, Inc., Asante Technologies, Inc., ATI, Adaptec, Inc., Diamond Computer Systems, Inc., Second Wave, Inc. and Farallon Computing, Inc. — have promised to deliver Macintosh PCI products.

PCI is said to be 300% faster than Apple's NuBus 90 architecture. "This is significant for the Apple community, and since PCI is a more sophisticated graphics controller, it will benefit the publishing and graphic sectors that [are] part of Apple's core market," said Jennifer Munson, a PC analyst at WorkGroup Technologies, Inc. in Hampton, N.H.

"I'm all for anything that could make things faster. Right now, dealing with photos and touching them up is still way too slow," said Dennis Bonifer, a graphic artist at the *Herald Dispatch* in Huntington, W. Va.

However, some analysts claim Apple is "dragging [users] kicking and screaming," Munson said. "Users want to buy a new operating system when they are ready. They don't want to be forced into it by the hardware."

Most users were enthusiastic about the benefits of PCI and Marconi, but some said they had yet to upgrade from System 7, which came out in 1991.

Bonifer said his department still uses System 7 for budgetary reasons.

Bob Anderson, a senior analyst at A. O. Smith Automotive Products Co. in Milwaukee, said most users at his company run System 7 and, right now, he has no intention of upgrading everyone.

"Upgrading will definitely be an issue with Copland [System 8], but for right now, we are not upgrading users unless we buy them Power Macs. Then they get 7.5," Anderson said. Copland is due out in mid-1996.

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Spreadsheets

CONTINUED FROM PAGE 41

chance to focus on a certain market instead of competing head-to-head with the major vendors.

"They can jump in and do well and sell off their technology," Fukuda said. "This area will continue to grow, with more products for vertical markets," including the food industry and clothing manufacturers.

Though users may be happy with spreadsheet features, they are finding other uses for the product beyond its basic functioos. More and more, spreadsheets are providing users with a familiar interface to perform complicated database-related tasks.

Closer Look SPREADSHEETS

Purina Mills in St. Louis oses spreadsheets as the interface to move data residing in an IBM RS/6000 to PC-based financial analysts. Senior business analyst Peter Wellbrock used SAS Institute, Inc.'s database structure and tools to create a report writing and analysis application that lets osers get this data in their spreadsheets.

"We are oot asking users to change the way they do things," Wellbrock noted. "And at the same time we can extend the life of a legacy system."

"People are reloctant to step outside the familiar interface," said John McIntyre, program manager for business intelligence software at SAS. "It is the interface of choice for an entire generation of compoter osers whose entrance and understanding of how a computer works is framed by the spreadsheet."

Using Excel and Sinper Corp.'s TM/1 on-line analytical processing software, employees at Occidental Chemical Corp. in Dallas review the corporate database to see where product lines could be consolidated. Jim Bell, manager of manufacturing systems, said TM/1 is used to slice and dice the data, while Excel is used as the database froot eod and report writer.

Bell noted that while spreadsheets do offer data modeling, the features are limited to small data models and do not support clieot/server architectures.

But as simple databases, spreadsheets are easier to use than database programs, many users find.

"If you compare the capabilities of spreadsheets now to five years ago, they are so much more powerful today," Fukuda said. "With all the sorting, it is almost like a database tool."

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Source: Survey of COMPUTERWORLD CD subscribers, May 1993.

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CD-4/3

Sigma Designs Imaging Systems, Inc. has announced the ColorFX line of 20- and 21-in. displays.

According to the Fremoot, Calif., firm, the ColorFX line provides multisync capability along with 24 user-programmable and seven preset operatioo modes so users can customize their displays.

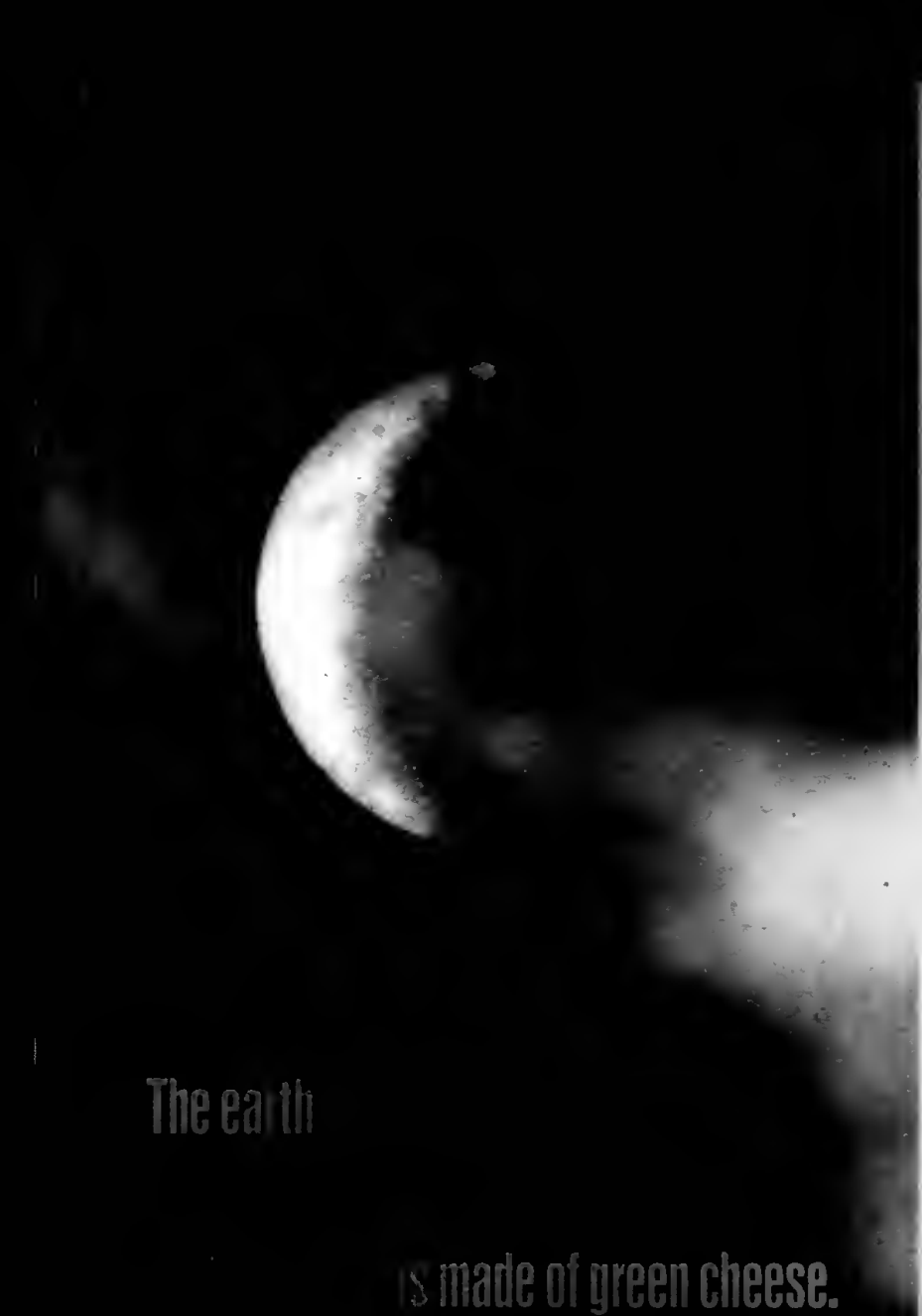
The displays are targeted at insurance, medical, governmeot and legal markets that require color imaging. The products are compatible with third-party imaging software and feature op to 85-MHz refresh rates and 1,600- by 1,200-pixel resolution.

Prices range from $1,749 to $2,449.

▶ *Sigma Designs Imaging Systems (510) 770-1189*

Product short

ASF Associates Ltd. has announced the NCL 480 Notebook Compoter Light, a reading light for portable computers. The light evenly illuminates the work area to reduce eye strain. Cost: $39. ASF Associates, Merrick, N.Y. (518) 868-3838.



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IBM offers worldwide PC support

PaineWebber links 320 offices

By Jaikumar Vijayan

About a year ago, when PaineWebber, Inc. finished installing thousands of PCs in its branch offices across the country, it faced a problem: How should it distribute software to them?

Thanks to an ambitious project completed recently, PaineWebber seems to have solved that problem.

Working with an IBM development team in Italy and IBM's electronic distribution software, PaineWebber linked about 12,000 PCs in more than 320 branch locations to a centralized electronic software distribution system in Lincoln Harbor, N.J.

"IBM's willingness to work with us and support us through the implementation was a key ingredient in my decision" to begin this project, said Gloria Euben, a vice president at PaineWebber

Service to spare

IBM is now making this kind of support available on a much wider basis. It recently announced the NetWorkStation Management service, under which IBM will provide worldwide PC support. That support includes consulting, configuration, asset management and help desk services, equipment procurement, software and hardware installation, network and systems management, user training and maintenance.

According to IBM, customers can select any or all services offered under the program.

Prior to the program's formal rollout, IBM tested it at large multinational corporations such as McDonnell Douglas Corp. and UK-based BP Chemicals for more than a year, said Nancy Stewart, a vice president of IBM's NetWorkStation Management services program. In fact, at McDonnell Douglas alone, IBM is providing help desk and support services for more than 50,000 users, she said.

Stewart said services such as these can help reduce the cost of owning a PC by 10% to 15% over the life of the system.

"In many cases, the proliferation of desktop PCs has added layers of complexity" to support and management infrastructures at corporations, said Robert Djurdjevic, president of Annex Research, Inc. in Phoenix. Outsourcing support has been a way to regain a measure of control at a reasonable cost, he said.

For instance, London real estate consultancy Healy and Baker has contracted with IBM for the centralized purchase, shipping, support and maintenance of PCs in each of the several European countries where its branch offices are located. Under the contract, IBM's UK operation will act as the single-point source for the organization's entire desktop operation.

"We have been seeing some major cost savings" from the arrangement, said David McGregor, who oversees the complete information technology functions for Healy and Baker. Though he did not specify by how much, the volumes generated through centralized purchasing have "made it substantially cheaper for us to purchase hardware," he explained. "And we have been getting the same level of service across all our branches."

Single offering

As part of the service, IBM will help customers manage and implement client/server systems from multiple vendors, Stewart said.

Some analysts pointed out that IBM's program is not particularly new as a concept. For instance, a recent Dataquest, Inc. report pointed out that competitors such as Digital Equipment Corp., Hewlett-Packard Co. and AT&T Global Information Solutions have also acquired "impressive services and extensive capabilities/infrastructures in the area of distributed systems management."

The key difference, according to Dataquest analyst Allie Young, is that IBM has formalized the services under a single umbrella offering with a new service label.

Markup language a mixed bag for publisher

By Suruchi Mohan

When the Research Institute of America started upgrading its publishing system about two years ago, little did management realize that it had a minor coup on its hands.

From a business perspective, the replacement of its manual publishing system with the automated Standard Generalized Markup Language (SGML) was a resounding success for New York-based Research Institute of America (RIA), which publishes reference materials covering taxation and other regulatory information.

The switch increased efficiency and created opportunities for new product launches. The company, owned by Thomson Professional Publishing, began saving $2.2 million a year.

But culturally, the project was far from a success. "It's been a business success [but] a cultural failure," said Paul Jensen, vice president and chief information officer at RIA. "Editors felt deprofessionalized because they saw themselves doing work that [clerks] had been doing," and the whole project degenerated into a class war, he said.

In the beginning

RIA started putting together a homegrown publishing system in 1992, Jensen said. The system included an SGML database with tools for editing and composition. RIA's editors, who are also lawyers, decide what needs to be edited and updated, pull it from the database and use the SGML editor to lead them through the process of editing the material.

When the editors are done marking up the text using SGML, they send it back to the database, where the materials are composed automatically and printed on a laser printer. The editors can view the information in hard copy or electronically.

"We've eliminated weeks from the process," mostly by automating the composition process, Jensen said.

In addition, all information is now stored in one database instead of the three required earlier.

But SGML changes the "way we consume, write, and think about documents," said Jennifer Mitchell, principal analyst at Dataquest, Inc. in San Jose, Calif. "People are used to documents being a sequence of still, paginated images," and authors don't think in terms of fragments of information, which SGML forces them to do, she said.

"Thomson's experience is typical of most SGML implementations," said Frank Gilbane, editorial director of "The Gilbane Report," a bimonthly newsletter in Marshfield, Mass. "It's been very difficult to get people to adopt. The implementations are successful, but there's always a cost."

What is SGML?

Standard Generalized Markup Language is a set of rules for information sharing. By excluding formatting, it allows documents to be shared across any kind of publishing system. SGML became an International Standards Organization standard in 1986.

Down a notch

In the case of RIA, one of the costs was the editors/lawyers feeling that they were now performing simple clerical functions.

On the other hand, editorial assistants, who were essentially file clerks and typists, were now required to master PCs, composition systems and CD-ROMs.

A problem with introducing all new technology is that it does not work the way it is supposed to on the first day, said Steve Zelman, director of the primary law department at RIA, who spearheaded the movement to change the antiquated publishing system.

Much of the problem had to do with the overall change in technology, which necessitated giving up old work habits, he added. Management has been working to overcome the editorial staff's woes by eliminating old job titles, creating new job descriptions, giving new incentives and creating a help desk, which is designed to function like an Employee Assistance Program, Jensen said

But the business value of the new technology cannot be overemphasized, he added.

The company built a CD-ROM product in six months — a process that under the old system would have taken from 18 months to two years.

The good with the bad

RIA's implementation of SGML was great for business but not so good for morale

Benefits

- Migration of six major product lines
- An increase in new material equivalent to 1 million printed pages
- New product opportunities
- Reduction of composition costs by $2.2 million a year

Problems

- Class warfare
- Shift in job responsibilities
- Continued high level of end-user support
- Failure of users to take ownership of SGML

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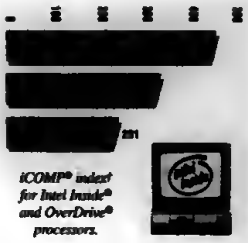

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Jean S. Bozman

Is Unix going soft?

The powers that be in Unix are warily eyeing the power that *is* Microsoft.

In recent weeks, there have been several signs that major Unix vendors are trying to accommodate Microsoft — even if they doubt that Microsoft will play the open systems game their way.

UniForum Association executives appear to be on such a path as they consider changing the name of their association and trade show. The name change discussion among vendors attending UniForum '95 in Dallas last month prompted a sharp warning from Silicon Graphics CEO Ed McCracken, who said admitting Microsoft into the open systems process would be "a grave mistake."

The reason for UniForum's Microsoft-friendly politicking is that users and vendors must "broaden" their definition of open systems to include Microsoft — and the millions of PC desktops that attach to Unix servers.

Somewhat less visible, but far more important than the proposed UniForum name change, is X/Open Co.'s consideration of a new category of specifications that define networked services for open systems networks [CW, March 20].

The new category of interoperable services was a popular topic at off-site meetings during UniForum. If accepted by X/Open, the specifications would allow Microsoft to "buy in" to open systems interoperability for its distributed objects and OLE-based applications. Until now, Microsoft has refused to endorse X/Open's Unix standards but remains active in X/Open's Independent Software Vendor Council.

Unix users may well be uncomfortable with allowing Microsoft into the open systems club because, many noted, Microsoft sets its own de facto standards. "Should we put our [operating system] in the hands of one company?" one Midwest IS manager asked. "I would rather not." Another user said, "I think Microsoft is going to lock itself in like IBM since most of its stuff is proprietary." And a third user said, "Windows captured the desktop, and Unix has captured the back-end servers, for now. The dialogue of confrontation is part of the action."

Some say Microsoft's limited participation in open systems groups, including X/Open, is a learning process for Microsoft more than anything else. If that is the case, then Unix vendors could be giving up the keys to their kingdom by signaling their every move to Microsoft.

Vendors vary in their support for X/Open's open systems brands. Microsoft's products, including its Xenix Unix-on-Intel operating system sold by the Santa Cruz Operation, do not bear X/Open's XPG4 brand.

Still, Microsoft and the Unix vendors are steadily moving toward detente. In recent months, Unix vendors have all but conceded the desktop to Windows; even Sun Microsystems said it will "embrace" the Windows desktop with its Unix servers. And the battle will move to a higher level — that of application objects and object development frameworks.

Notwithstanding the drama of this uneasy Microsoft-Unix coexistence, the need for Microsoft products that plug and play with Unix systems has never been greater. And for Microsoft's Windows NT servers to take off, they must also have more hooks into the open systems world. The links that evolve will be those that span the enterprise, delivering Microsoft's software and objects to Unix servers and Windows NT servers.

The question is not whether this should be done. The question is at what pace Microsoft should move to support open systems and how to make it happen.

Bozman is *Computerworld*'s senior editor, Open Systems.

Briefs

Small investors get Aqcess

NASDAQ has unveiled Aqcess, a system for small investment orders. Meant to reduce investors' costs via better price protection on stock purchases, it needs approval from the Securities and Exchange Commission.

Cisco, Madge sign deal

Cisco Systems, Inc. and Madge Networks, Inc. have inked a deal for Cisco to market Madge's Token Ring switch. In return, Cisco is licensing Madge's RingRunner switch technology for future products.

Cisco will release a customized, stand-alone version of the Token Ring switch by midyear.

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FCC auction built on client/server

Software enables simultaneous bidding

By Gary H. Anthes
WASHINGTON

"You are about to submit all your bids for this round," said the message on the screen. "You will not be able to submit a bid again in this round. Is this what you want to do? Click on Yes or No."

If the idea of an auction of the nation's airwaves conjures up images of a fast-talking auctioneer crying out, "What am I bid for 1 MHz of radio spectrum in Detroit?" you have not seen the Auction Bidding System, an indispensable part of the Federal Communication Commission's recent sell-off of the nation's wireless communications spectrum.

In traditional auctions, bids are submitted sequentially until an higher offer is received for an item; the FCC is nsing "simultaneous, multiple-round" auctions.

In the FCC's most recent auction, which raised $7.7 billion, bidders could bid simultaneously on any combination of 99 licenses — the rights to control the airwaves in a certain portion of the electromagnetic spectrum in a given part of the country — during a fixed, two-hour time window.

Bids are snbmitted privately and electronically, and bidders see all competing bids at the end of each round. Additional rounds are held until no new bid is received for any license.

"'Simultaneous' is the key word; all licenses in an anction remain open until all close," said John Giuli, the FCC's chief of technical operations for auctions. "This kind of auction has never been bcld before."

Vice President Al Gore

High praise

The FCC's pioneering work with "simultaneous, multiple-round" auctions last year won it the Hammer Award for Reinventing Government from Vice President Al Gore, who called the FCC "the little agency that could."

While the concept is simple, complexities abound. Bidders are required to adhere to minimum bid increments, which are set by the FCC and increase as the auction progresses. They must also maintain minimum levels of bidding activity, which vary from bidder to bidder and increase as the auction progresses. Bidders pay a penalty for failure to maintain tbe minimum bidding activity.

> "'Simultaneous' is the key word, all licenses remain open until all close."
>
> John Giuli, FCC chief of technical operations for auctions

All bids, eligibilities and penalties are maintained in real time in the Auction Bidding System, as are static bidder and license data and the applicable auction rules set fortb by Congress and the FCC.

At the close of each round — one in the morning and one in the afternoon — the system makes the results known immediately in a number of ways. Paper reports are printed in multiple copies for on-site distribution, and results are posted to an internet file-transfer site, an FCC electronic bulletin board and an FCC fax-on-demand service. Bidders may also dial into the Auction Bidding System directly to download files or view results on-line.

Karen Wrege, management analyst for information systems at the FCC's Wireless Telecommunications Bureau, said an off-the-shelf application software was available tn meet the FCC's needs. "This is handcrafted by the FCC and the [telecommunications] industry — by lawyers, game theorists and so forth," she said.

Even when managed by FCC staff, the translation of auction rules into software was tricky, Wrege said. "When lawyers and game theorists get involved in deciding what the rules are, they may not be implementable," she said. "You can get into circular logic, and you get a problem coding that."

The Auctinn Bidding System employs a client/server architecture. Users enter bids and nther data via PCs in 20 private on-site booths or by telephone to 10 clerks at terminals. A pair of database servers from Sun Microsystems, Inc. running Sybase, Inc.'s database and an HP file server are attached to a Novell, Inc. LAN at FCC auction beadquarters here.

Application software is written in Sybase's PowerBuilder.

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Arcada Software, Inc. has announced Backup Exec 6.0 for Windows NT, backup utility software.

According to the Lake Mary, Fla., company, Backup Exec 6.0 lets administrators remotely control and monitor network backup servers from a single console.

The product can run as a subset of Windows NT System Services, so it automatically starts up when the system is turned on. Features include backup and restore for SQL databases, support for high-capacity backups using autoloaders, software data compression and database consistency checks.

Backup Exec 6.0 costs $695 for the single server edition and $1,295 for the Enterprise Edition. The product supports Digital Equipment Corp.'s Alpha and Intel Corp., Mips Technologies, Inc. and IBM PowerPC platforms.

▶ *Arcada Software*
(407) 333-7500

Highland Technologies, Inc. has announced HighView 2.4, imaging and workflow development software.

According to the Greenbelt, Md., company, HighView 2.4 manages electronic file formats and bit-mapped images and displays documents created in standard Windows applications.

Features include a graphical configuration utility for client/server systems, native support for Informix Corp.'s On-Line database management system and support for pixel translation libraries.

HighView 2.4 costs $12,500 for a six-user system.

▶ *Highland Technologies*
(301) 345-8200

Tektronix, Inc. has announced WinDD for Workstations, client/server software that provides Unix workstation access to Windows applications.

According to the Wilsonville, Ore., company, WinDD lets a PC server provide Windows applications to up to 20 concurrent X11 compatible Unix workstations.

No other PC emulation technology is required. The product supports Sun Microsystems, Inc., Silicon Graphics, Inc. and Hewlett-Packard Co. workstations.

Prices start at $195 per seat. Server software costs $3,495.

▶ *Tektronix*
(503) 682-7377

Leunig Communications, Inc. has announced Net44, hardware that connects up to four PCs through a standard printer cable to a parallel printer port.

According to the San Jose, Calif., company, Net44 lets users simultaneously access two printers also connected to the product and supports 4-bit and 8-bit communications.

Net44 comes with a NDIS3 driver that supports the networking functionality of Microsoft Corp.'s Windows for Workgroups.

Net44 costs $249.

▶ *Leunig Communications*
(408) 441-6560

LAN-Aces, Inc. has announced Office-Logic 2.0, groupware that features a bulletin system and intelligent routing.

According to the Houston company, Office-Logic 2.0 includes an in/out board for users to monitor employee availability, a spell checker for all applications, nonintrusive notification and database and scheduler improvements.

Prices range from $495 to $4,995 for five to 100 users.

▶ *LAN-Aces*
(713) 890-9787

Intrack, Inc. has announced ServerTrack for Windows 2.0, real-time performance monitoring software for Novell, Inc. NetWare servers.

According to the San Diego company, ServerTrack for Windows 2.0 monitors almost 100 server performance statistics and ratios and lets users display information from multiple servers simultaneously. A stopwatch feature lets users display any combination of servers and statistics.

Prices range from $249 to $999, depending on the number of servers.

▶ *Intrack*
(619) 695-1900

Remedy Corp. has announced Flashboards, help desk and support software.

According to the Mountain View, Calif., company, Flashboards graphically presents real-time and historical process and performance metrics to help desks and support teams. The product also tracks and displays historical data for trend analysis. Users can set performance thresholds to receive visual warnings of potential trouble.

Flashboards costs $5,000 for the server and five client licenses.

▶ *Remedy*
(415) 903-5200

Product short

Automation Software Consultants, Inc. has introduced BatchWare, batch job processing software for PC LANs. The product lets users perform any DOS-based task — including database reports, backups, downloads, virus scans and compilations — off-line on a task server. Cost: $195. Automation Software Consultants, Cincinnati, Ohio (513) 528-1809.

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It's very easy to feel like the bug these days.

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Enterprise Networking

The first regularly scheduled Internet Page debuts this week. On the page: a Web conferencing tool, hot sites, legal battles and interactive corporate Web sites. **See page 64.**

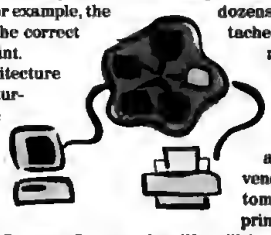
Firms team to ease printing hassles

By Laura DiDio
SALT LAKE CITY

■ Novell, Inc., Hewlett-Packard Co. and Xerox Corp. will jointly develop an "intuitive" set of printing services designed to eliminate some of the peskiest problems that have plagued network users.

The announcement was made at the recent Brainshare conference here.

The forthcoming NetWare Distributed Print Services (NDPS) is a client/server, application layer print service for NetWare LANs. Intended to give users more control over their printers, the service would eliminate, for example, the need for end users to locate the correct print driver before they can print.



NDPS is an extensible architecture that will let printer manufacturers and independent software developers create software and hardware printing products based on NetWare 4.1 core services, according to Richard King, executive vice president of Novell's NetWare Systems Group. The first release of NDPS will ship in early 1996, he said.

"NDPS will provide end users with greater control over their print jobs and eliminate 'Sneakernet,'" King said. "For instance, NDPS-enabled printers will automatically download the correct software driver. And in the event that a particular printer is busy, NDPS services will automatically reroute the print job to another printer."

Easy street

The forthcoming NDPS products and services will also ease printer administration, King said. Network managers will be automatically informed of print status, for example.

Network administrators will be able to supervise all network print devices from within Novell's NwAdmin or industry standard Simple Network Management Protocol (SNMP)-based consoles. And users will have the ability to perform advanced tasks such as moving copy jobs among printers, King said.

John Goetz, a senior analyst at market research firm Dataquest, Inc. in Santa Clara, Calif., hailed the Novell/HP/Xerox alliance as a much needed first step toward delivering next-generation network printing capabilities.

"Anything that will make life easier for users is a welcomed and positive move," Goetz said. "And since it's being promoted by the industry leaders, it's likely to become a standard."

Printing, one of the oldest and most used network facilities, is still one of the most problematic for businesses. That is because, as Goetz observed, "there's no longer any such thing as a homogeneous environment. And trying to get dozens of different printers — attached to different networks in a variety of locations — to work together is no mean feat."

Goetz said the alliance among market leaders Novell, HP and Xerox is encouraging and should cause other vendors to follow suit. "The bottom line is, the more similar these printers look, the easier networking life will be for everyone concerned," he said.

Ship ahoy!

The first release of NDPS will ship as an add-on module to NetWare 4.1 environments beginning early in 1996, King said. Xerox and HP will integrate the NDPS technology into their respective hardware and software devices, according to Jim Lesko, president of Xerox's Office Document Systems group.

Xerox's first NDPS printer will ship at the same time as the initial NDPS offering in the first quarter of 1996. For its part, HP will ship gateway devices to enable corporate customers to manage existing HP printers. HP and Xerox will also comarket NDPS with Novell, King said.

Independent software vendors will be able to develop products that deliver customized add-on services such as font servers, fax servers, automatic document conversion and printer load sharing, King said.

Net tool choices befuddle users

By Steve Moore

Network management users are discovering that there can be too much of a less-than-perfect thing. Customers are being barraged by an increasing variety of products — some of which are not well-integrated with the major vendors' management platforms.

Take note of the following network monitoring and modeling tool advice:

- Start with basic monitoring functions, then graduate to higher-end tools as needed.
- Before buying, know as much as possible about your network's current structure and behavior.
- Make sure your chosen product supports your legacy systems and can share data with other tools.

In the past six months alone, at least six new network monitoring and modeling products have been launched, three from existing vendors and three from start-ups.

Not enough knowledge

In addition, analysts warn that few users know enough about their network's behavior to take full advantage of the tools in which they invest. "Deploying a design tool without having a real understanding of what's going on in your network on a day-to-day basis is a huge mistake," said John Morency, a principal consultant at Strategic Networks Consulting, Inc. in Rockland, Mass.

With so many widely disparate design and monitoring tools on the market, large companies often use more than one.

First tool first

"When new applications are deployed by our clients, we first use [CoroNet Systems, Inc.'s CoroNet Management System (CMS)] to baseline the current application utilization," said Andrew Kamin, head of Peat Marwick LLP's San Francisco enterprise networking group.

Once that is done, Kamin said, the next step is to "find out how the customer will use the new application and model that on a different kind of tool, a sophisticated simulation modeling tool called Bones." Peat Marwick has invested about $100,000 in Bones, a product set from Systems & Networks in Foster City, Calif. Bones runs on Unix and requires a dedicated operator, he said.

CoroNet's CMS costs much less, runs on a 486-based PC and is easier to use, Kamin said. But Peat Marwick needs both products, and neither product can be substituted for the other, he added.

In fact, any large corporation with many divisions would be likely to use multiple design and modeling tools. The company would most likely use low and midrange

Net tools, *page 65*

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Linking remote UNIX systems to IBM hosts can be a challenge. There are many issues to consider:

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- Do you access 3270/5250 applications interactively, use batch (RJE), or do both?
- Do you need programming interfaces such as HLLAPI, APPC/CPI-C/LU6.2, and LUA/LU0?
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Firms pilot interactive Web pages

By Ellis Booker

Hundreds of corporate World-Wide Web sites have been added to the Internet in recent months, but a surprising number lack any kind of interactive features. Some do not even allow visitors to send electronic-mail messages to corporate sponsors.

Happily, some standout corporate Web pages exist that demonstrate what can be accomplished. Three companies, in particular, have put up home pages that let Web surfers do some interesting tasks. These include Fidelity Investment Co. in Boston, FedEx Corp. in Memphis and Capital One, Inc. in Richmond, Va. Interestingly, none of the three sites have made on-line ordering interactive.

The Fidelity home page (http://www.fid-inv.com) was launched Feb. 14 and contains information about Fidelity and its services, including information about 160 mutual funds.

The interactive component is a forms-based worksheet for calculating savings needs for a college fund. According to Iang Jeon, director of electronic marketing, the application was developed in-house and runs on a Sun Microsystems, Inc. platform.

Users want more

"Users are clamoring to do [investment] transactions across the 'net," Jeon said, adding that Fidelity has no time frame for adding this capability. He said Fidelity plans to wait until Internet security protocols have stabilized and the Securities and Exchange Commission (SEC) has given its blessing.

For its part, FedEx's home page (http://www.fedex.com) has been active since last October. Initially, this site was a tame "place-holder page," conceded Robert G. Hamilton, manager of information services marketing.

Recently, FedEx created an interface between the Web page and its 12-year-old Powership, a PC-based package-tracking service. Now, Internet users can track FedEx packages as well.

FedEx's home page server, a Netsite Commerce Server from Netscape Communications Corp., receives roughly 16,000 hits a day.

Capital One's home page (http://www.capital1.com) accepts on-line applications for Visa credit cards.

The forms-based system, built in conjunction with Gillespie, Inc. in Princeton, N.J., runs on secure servers from Netscape.

The Fidelity Home Page *helps visitors calculate savings for a college fund*

Ubique boasts on-line Web conferencing tool

By Ellis Booker

The launch of Virtual Places, an interactive conferencing feature for World-Wide Web servers and browsers, was conducted, appropriately enough, entirely in cyberspace by Ubique, Inc. in San Francisco.

Company executives, guests and reporters logged on to Ubique's home page where they were represented as small photos or icons overlayed on a Web page. Attendees at the press conference could interact with one another by broadcasting messages to the room at large or by moving their icon beside another to start a private text chat or a point-to-point audio conference. The Web page for the conference had illustrations of chairs and a speaker's lectern.

Ubique's Virtual Places *home page has a tour bus that lets users take up to 10 other participants on a tour around the Web*

Applications, features

Applications for Virtual Places include conferences, distance learning, entertainment and customer support.

Virtual Places is composed of a Web server application and companion client. The client software, called the Virtual Places Companion, works with any Web browser and must be installed on each workstation entering the Web page. Ubique is this week scheduled to ship its Virtual Places client and server products for several Unix platforms. The firm will also make available a beta version of its Virtual Places client for Windows, according to company President Udi Shapiro.

At least one analyst, who was not present at the event, said Virtual Places is more than a unique novelty.

"What Ubique is doing is synchronizing a bunch of [Internet applications] for a unique communications environment," said Jerry Michalski, managing editor at "Release 1.0," an industry newsletter in New York. "It's one of the closest demonstrations I can see on how we'll be communicating with each other."

Ubique's client software includes an electronic "business card," which can be seen by other participants in Virtual Places. The client software also features an automated activity log, which lets users record their conversations as well as their movements through cyberspace.

A basic Virtual Server license, with a capacity of 10 concurrent users, costs $1,495 (with a $995 special until June 30). Each additional user costs $100. The license is for two years and includes upgrades, maintenance and support.

In addition, Ubique will make a basic Virtual Places Companion for Windows (without audio capabilities) available for free on the Internet on its Web home page (http://www.ubique.com). The company also said a Macintosh client will be ready in the fourth quarter.

Searching the 'Net

http://www.yahoo.com/
The toolbar on Netscape's popular Navigator browser has a link to Yahoo, but this free meta index of the Web should be on everybody's hot list.

http://lycos.cs.cmu.edu/
The Lycos home page and search system, maintained by Carnegie Mellon University, has numerous Lycos servers to pick from – a good thing because the service is often busy.

http://webcrawler.cs.washington.edu/WebCrawler/WebQuery.html
A simple front end makes the WebCrawler search system at the University of Washington a favorite.

http://www.directory.net
A searchable database (or alphabetical list) of commercial sites on the Internet, maintained by Open Market, Inc.

http://att.net/dir800
An up-to-date list of AT&T 800 numbers. A single source for ALL 800 listings is still preferable.

http://www.infoseek.com
A fee-based search service, InfoSeek Search scans the Web, commercial databases, 80 computer publications and all the 10,000-plus Usenet newsgroups. Fees start with a $9.95/month subscription.

http://www.four11.com/
Search for E-mail addresses. Requires sign-up for free password. More extensive features available for $20/year subscription.

http://www.ic.gov/94fact/fb94toc/fb94toc.html
The World Factbook 1994 is a country-by-country analysis by the CIA.

http://www.industry.net
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Cybercommunity upset by on-line obscenity bill

By Mitch Betts
WASHINGTON

Despite a barrage of opposition from civil liberties groups and the on-line community, the U.S. Senate Commerce Committee last month approved an amendment intended to keep smut out of cyberspace.

Sen. James Exon (D-Neb.), sponsor of the amendment to telecommunications reform legislation, said the goal is to protect children from obscene material found on the Internet and on-line services. "I want to keep the information superhighway from resembling a red-light district," he said.

But groups such as the Electronic Frontier Foundation and the Center for Democracy and Technology, both in Washington, called the amendment censorship and hope the measure will be stripped before the bill becomes law.

In essence, the measure expands the telephone obscenity law to the world of computer modems and outlaws material that is "obscene, lewd, lascivious, filthy or indecent."

Several legal experts said the provision appears to be unconstitutionally broad, so an appeal to the U.S. Supreme Court is a long-term option. "I just hope we don't have to go that far. That's a long and expensive trip," said David Banisar, spokesman for the Washington-based Electronic Privacy Information Center, another opponent.

After a flood of calls from anticensorship forces of the on-line community, Exon toned down the amendment's language to make only the content originator liable for the obscenity charges.

Net tools

CONTINUED FROM PAGE 63

tools for highly focused monitoring of specific network segments and perhaps one high-end tool for modeling detailed what-if scenarios.

For users who already have an SNMP-based network management platform such as IBM's NetView for AIX, Hewlett-Packard Co.'s OpenView Network Node Manager or SunSoft, Inc.'s SunNet Manager, Morency said a good approach is "to selectively deploy Remote Monitoring [Rmon] probes."

"Users should first get a feel for network problem patterns using Rmon probes, and then they'll be able to be more aware going into the design tool market," Morency said.

Users who are ready to move beyond Rmon are asking for design tools that are integrated with network management platforms. The Bank of America in San Francisco, which has standardized on IBM's NetView/6000, is now beta-testing a new monitoring and design tool from Netsys Technologies, Inc. in Palo Alto, Calif.

"We would like to see NetSys doing integration work with NetView/6000 so we can have network management and troubleshooting allied with logical and physical design," said Matt Rouse, the bank's systems manager for open networks.

One of the bank's biggest problems is the proliferation of network access lists, Rouse said. "Because our access lists are so long, it becomes difficult to troubleshoot and make sure something wasn't left out or added to allow access to someone who shouldn't have it," he explained. NetSys will identify problem areas and indicate where [access] problems are occurring, he said.

The next issue that network monitoring and design tool vendors must address is integration with other management applications, said John McConnell, president of McConnell Consulting Co. in Boulder, Colo. For example, he said, "If you have CoroNet's CMS watching a Lotus Notes session, and you notice a lot of delay in the server, why not issue a trouble ticket or send an alert to a server expert who can drill down to find the source of the delay?"

Mustang Software, Inc. has announced Off-Line Xpress (OLX) for Windows, an off-line electronic-mail reader.

According to the Bakersfield, Calif., company, OLX for Windows lets bulletin board service callers read and reply to messages off-line. The reader also saves calling fees.

A uudecode feature lets users convert Internet messages from the uuencode format and piece together an encoded file from several Internet messages into one binary file.

OLX for Windows costs $49.

▶ *Mustang Software*
(805) 873-2500

Bay Networks, Inc. has announced Distributed 5000, a switching hub.

According to the Santa Clara, Calif., company, Distributed 5000 is an intelligent multisegment Ethernet hub that was designed for use in enterprise wiring closets.

The hub supports from three to 72 Ethernet segments and interconnects horizontal wiring from desktops with vertical backbone riser cable systems.

A variety of modules are available for connectivity requirements and network management.

Distributed 5000 costs $845 for the two-slot version and $1,095 for the three-slot version.

▶ *Bay Networks*
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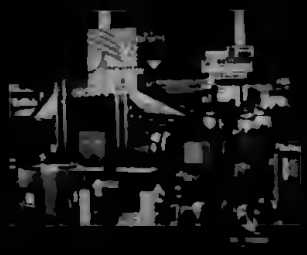

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Start-up maps out routes to pen-based, handheld systems

By Michael Fitzgerald

Like an explorer of old, sailing into unfamiliar waters, Wayfarer Communication, Inc.'s Wayfarer Enterprise Server NT could let users chart new passages to pen-based and handheld systems.

The Wayfarer server is a three-tiered communications and application development framework (see chart).

Although Wayfarer is a start-up, its product announcement drew enthusiasm because the server taps the handheld market, which has generated little but killer coocepts.

"There's really nothing in the market" that provides a three-tiered remote architecture for pen-based systems, said Gerhard Blendstrup, senior vice president of strategic services at Automated Data Processing, inc.'s (ADP) Claims Solutions Group in San Ramon, Calif. Blendstrup said ADP is very interested in a store-and-forward messaging environment that will run over wireless communications and work with pen-based systems.

ADP, which has a large pen-based application for insurance claims adjusters, has started building an architecture that is meant to offer the kinds of functionality found in the Wayfarer server. The company looked at Oracle Corp.'s Oracle-in-Motion, but said it lacked the three-tiered approach ADP wants. Blendstrup said the Wayfarer server may fit its needs.

Anthony Parziale, MIS director for the Town of Groton, Conn., is also interested in the Wayfarer server. The Groton Police Department uses a local Cellular Digital Packet Data (CDPD) network to transmit wireless data to and from squad cars.

The three components of Wayfarer Enterprise Server NT include the following:

1 Enterprise Server
- Windows NT-based middleware server
- Supports standard development tools
- Functions as a gateway between the enterprise and mobile workers
- TCP/IP-based

2 System Manager
- Security: Handles passwords, user profiles, permission schemes
- Offers centralized control

3 Client
- Supports Window-based PCs and Apple's Newton PDA
- Supports Ethernet and dial-up connections
- Supports wireless (circuit-switched cellular, CDPD, RAM Mobile Data, Metricom's Ricochet network)
- Supports some radio frequency networks

The department has "been wondering about how to get information to an officer on foot," he said.

Wayfarer Enterprise Server NT could offer them that ability, Parziale said.

The Wayfarer server runs on systems with at least a 33-MHz 486 chip. Wayfarer recommends 32M bytes of RAM, a 500M-byte hard drive and a network adapter. The System Manager requires a 25-MHz 486 PC and works with Microsoft Corp.'s Windows 3.1, Windows for Workgroups 3.11 or Windows NT 3.5. It requires 16M bytes of RAM and a 340M-byte hard disk.

The Wayfarer Windows Client requires at least a 25-MHz 386 chip. Wayfarer recommends 8M bytes of RAM and a 40M-byte hard disk. A TCP/IP protocol stack is also required. Pricing varies, but it averages out to roughly $100 per user, the company said.

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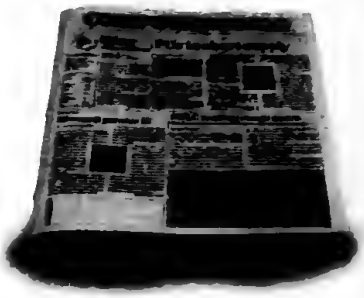

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DATABASE STANDARD IN THE WORKS, 72
NEW PRODUCTS, 73

Data access turns around

Multidimensional system puts Blue Cross/Blue Shield into the '90s

By Rosemary Cafasso

When Paul Mangili joined Blue Cross/Blue Shield of Rhode Island three years ago as a cost accountant, he spent many an hour pouring over documents, rekeying numbers into a Lotus Development Corp. 1-2-3 spreadsheet and then creating reports.

"It was caveman time," Mangili said. But his department was about to launch one of the first end-user data access projects at the insurance company.

Today, the cost accounting department is far more evolved, to use Mangili's analogy. It now uses a multidimensional database system from Arbor Software, Inc. to analyze, slice, dice, chew up and spit out data in a variety of reports.

"The overall objective was management needed cost information for faster decision-making," said Norbert Charette, manager of cost accounting. "We felt that we had a level of detail that was just too much. We needed a process that would give us the ability to extract summary data in more digestible amounts."

The cost accountants no longer feel like slaves to mainframe-generated reports, Mangili said. "It used to take three or four accountants to turn [a report] around in a week," he said. "Now, it'll take one person a day, maybe two" to produce a report.

Getting info to end users

Arbor is one of several companies that markets multidimensional database systems which have also become known as on-line analytical processing systems. Multidimensional databases specialize in very quick data access for complex queries.

At Blue Cross, the cost accounting system receives regular downloads of data from production mainframe applications. The data is then stored in the Arbor back-end multidimensional database. The system uses a front-end component that is a spreadsheet-like program and graphical user interface.

Cost accountants work with this front-end piece to view data and then create reports that track and explain spending for different groups in the insurance company.

The system has highlighted the need for more end-user technology and end-user data access tools, said George Trudell, a business and technology consultant at Blue Cross who worked with the cost accounting department on the project.

Trudell is working on a steering committee that is setting up guidelines for end-user data access tools and that will also address other end-user issues such as data warehousing.

The committee's mission is to push information out to end users, Trudell said.

This is a critical issue for most corporations today, and insurance companies are no exception.

Data access is "a very big issue," said Catherine Westin, a partner in managed care consulting at Ernst & Young in Boston. "Over the past five or seven years, [insurance companies] have focused on administrative costs, streamlining, downsizing. . . . Now they have to find ways to get at the data. They have all this data locked up in their claims systems."

At a glance

Blue Cross/Blue Shield of Rhode Island
Founded: 1939
Number of employees: 1,500
Number of subscribers: 525,000
1994 operating revenue: $735.3 million

George Trudell, Norbert Charette and Paul Mangili *helped launch a data access project at Blue Cross/Blue Shield*

Proving a point

To help sell management on the multidimensional database system, Blue Cross' Norbert Charette said he tried to first "beat them up visually." He showed up dozens of mainframe-generated reports, consuming a foot high by 10 feet long, in a conference room. Then, he held his breath, to show the kind accountants must work with every day, and what the new system would replace. It worked.

Educational process

Among other lessons, the cost accounting experiment showed Blue Cross that it can address what can be an overwhelming issue — corporatewide end-user data access — in manageable chunks.

For starters, the cost accounting department was turned around at a small cost — just $30,000 for the Arbor system, according to Charette.

Plus, with 18 people in the department, implementing the technology was not disruptive.

Trudell said the steering committee's work will focus on getting these kinds of results for other departments. The team is looking at warehousing guidelines and will incorporate information from other projects, such as a Notes pilot now under way.

"That is seen as a means to reduce a lot of the bureaucracy and paperwork that's been there in the past," Trudell said of the Notes test.

Trudell said the Arbor software will be recommended for other departments that require large volumes of data analysis. Other query tools will be evaluated for less analytical environments.

Replication could be database link

By Kim S. Nash

■ Database replication — the process of keeping two or more databases in sync by regularly copying, updating and reconciling conflicts with data — is increasingly on the minds of users seeking to connect various databases.

Sybase, Inc. recently introduced upgrades for its Replication Server database to speed performance and fill gaps such as security.

Meanwhile, Microsoft Corp. has unveiled its own replication capabilities. The company's SQL Server 6.0 database, which entered final beta testing last month, includes the ability to replicate data among databases that support the Open Database Connectivity (ODBC) interface.

A late 1994 survey of 50 information systems managers revealed that more than half were evaluating replication and that about one-fourth had already committed to the technology, according to Bobby Cameron, an analyst at Forrester Research, Inc. in Cambridge, Mass.

But until Sybase and others offer sophisticated replication capabilities between their own databases and those of rivals, users are unlikely to adopt the technology across the board, Cameron said.

Replication

What it is
- Copying and synchronizing partial or full databases on a network

What it does
- Moves data into business units
- Controls network traffic
- Creates hot backup

Responding to users

Sybase, in Emeryville, Calif., has indeed seen such demands from existing and prospective customers, said Jagdish Mirani, Replication Server product marketing manager.

In response, the company plans to build several "agents" designed to work with Replication Server and non-Sybase databases, Mirani said. Replication Agent for DB2 is the first; it started shipping last week. An agent for Notes is due in early 1995.

Sybase also promised last week to ship Replication Driver for ODBC in the fourth quarter.

Replication "is a biggie" in SQL Server 6.0, said Barry Seymour, a consultant at Database Server Systems, Inc. in South San Francisco. Database administrators can set up replication by dragging and dropping icons that represent servers, connections and other parts of the database equation. This will make replication "comprehensible to the average person," Seymour said.

Sybase users, on the other hand, manage replication using SQL, noted Roger Jennings, principal at OakLeaf Systems, a consultancy in Oakland, Calif.

However, Sybase plans to add more graphical utilities for Replication Server in the fourth quarter, Mirani said. New features will include more default settings for users who do not want to customize replication setups, he said.

Overall, Microsoft's built-in replication in SQL Server 6.0 is less expensive than the offerings of Sybase or other database providers, yet Sybase offers large user sites more flexibility, some observers said.

Replication, *page 72*

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Multivendor database standard en route

By Steve Moore

Within a year or so, users will finally gain at least limited ability to manage multivendor distributed database environments. This is because all the major database vendors are working to implement a standard called the Simple Network Management Protocol (SNMP) RDBMS Management Information Base (MIB).

Applications that support this standard are expected to become available during the next year or two. With them, users will be able to "walk into a network, probe all the machines for databases and get a general indication of how big they are, how busy they are and how much demand they place on the network," said Bob Purvy, chairman of the Internet Engineering Task Force's relational database management system MIB working group. He is also a senior project manager in Oracle Corp.'s systems management tools group.

Still, the standard will not be a panacea. It will not be able to tune every database because of architectural differences in the databases. And users will not be able to perform every single remote-control task, at least not for a while.

Despite these shortcomings, the RDBMS MIB will be a big help. The current lack of standards-based applications for managing multiple databases has left users with two unpalatable options. They can either content themselves with a separate set of vendor-specific tools for each database or invest heavily in developing their own tools for multivendor database management.

Working with pieces

"We currently have five database systems from five different vendors with different versions from some vendors — for example, Sybase [SQL Server] 4.9 and Sybase [SQL Server] System 10 — and we're struggling to find a way to give our administrators a common set of tools," said Richard Weiss, technical lead in the network and systems management group at a leading East Coast financial services company.

While he hopes to obtain an off-the-shelf management application that can handle a multivendor database environment, Weiss said the company may end up having to develop customized tools for that purpose.

Even if the role of the standard MIB is limited to monitoring and does not extend to control and configuration, it will be helpful "if you're a system administrator and you want to be able to tell the network guys, 'It's your fault, not mine,'" said Jill Huotington-Lee, a principal analyst at Brandywine Network Associates in Cinnaminson, N.J.

Wish list
Features still needed for SNMP database management

- ✔ Built-in RDBMS MIB support in all leading relational databases
- ✔ Off-the-shelf third-party applications that use RDBMS MIB information to manage multivendor database environments
- ✔ A common management database for RDBMS management tools

Because Oracle, Sybase, Inc., Informix Software, Inc. and IBM have already promised support for SNMP-based database monitoring, "other database vendors will have to follow suit and make their products manageable if they want to be players in a world where there are distributed databases and enterprise-wide management systems," she said.

The leading database vendors have stated their intention to implement the standard RDBMS MIB while simultaneously offering private MIBs tailored to the proprietary features of their databases.

But vendors' private MIB strategies pose problems for independent software developers. These issues are akin to deciding how many operating systems any given software vendor can affordably support.

Even though databases that are manageable by third-party management tools will gain a competitive advantage, "people who write apps to administer databases aren't going to invest in writing to five different [private] MIBs," said Rick Villars, director of network management research at International Data Corp. in Framingham, Mass.

No fire under Candle to move on distributed systems management

By Craig Stedman

■ A year after detailing plans to move beyond mainframe system management, Candle Corp. is still just blowing smoke about a promised object-oriented offering for distributed environments. But it hopes to finally light a fire under the new products by midyear.

Candle, one of the top vendors of performance measurement and system monitoring tools for mainframes, originally planned to ship pieces of its distributed Candle Command Center technology last year. However, the project was delayed because of technical and marketing changes, Candle executives said.

The Santa Monica, Calif., firm is now targeting June for an initial Command Center release that would monitor several Unix systems from OS/2-based consoles tied into MVS mainframes. Expanded monitoring support plus additional console and server platforms are scheduled to be added later this year and into next year (see box).

Chain of command

Candle's Command Center technology will be released according to the following schedule:

	Q2 1995	Q3 1995	Q4 1995	1996
Candle Management Workstation	OS/2			Windows NT, Motif based Unix
Candle Management Server	MVS	AIX		Windows NT, HP-UX, Sun Solaris
Omegamon monitoring agents	AIX, HP-UX SunOS	MVS		NetWare, Sun Solaris, Windows NT; Oracle and Sybase databases

Candle is promising some potentially user-pleasing features such as cross-platform visual programming of problem alert rules and support for application-level monitoring, said Paul Mason, a management software analyst at International Data Corp. in Framingham, Mass.

But mainframe rivals such as Legent Corp. and Landmark Systems Corp. have beaten Candle into the distributed market, putting it in danger of being left in the dark, Mason said.

The delays "certainly put the pressure on," said a Command Center beta tester at a financial institution. "We're always looking elsewhere, and should Candle announce further major delays that would certainly influence our plans. But so far, I have a good feeling based on the fact that I can see code and it's basically working."

Despite Candle's late arrival, Command Center still "sets them apart enough from the competition," added the executive, who asked not to be identified. The visual programming tool normalizes rules and statistics across multiple platforms, while application-level monitoring "looks very promising," he said.

Scott Phares, senior director of distributed solutions at Candle, conceded that the company is starting from behind because of the shipment delays. "Last year was the optimal time" to enter the distributed market, he said. "But it's not always bad to be the second one into the room."

The delays stemmed from an eleventh-hour repackaging of the Command Center technology, Phares said. The software was supposed to be combined with Candle's mainframe-only products in a single offering, but that "got confusing to the point where we couldn't explain it to our own sales force anymore," he said.

A new purpose

Now, Command Center is being designed specifically for monitoring and problem alert functions at shops with distributed networks, Phares said. That is a smaller slice of the management pie than Candle provides on the mainframe side, although a gateway between the two products is planned, he said.

Candle can take some solace in the fact that none of its competitors has shipped a full product set for distributed systems monitoring, said Christian Byrnes, an analyst at Meta Group, Inc. in Stamford, Conn. Customer interest "far outpaces the ability of vendors to give good answers," he added.

Candle's visual approach could provide a labor-saving way for users to create and distribute alert and automation rules as they scale their networks, Mason said. "It's going to mean a whole new way of thinking on the part of data center people, but it should make things a lot easier," he noted. "The idea, at least, is that you don't have to add management staff as you add servers."

Replication

CONTINUED FROM PAGE 69

Sybase's Replication Server users are charged based on three variables: the number of databases to be replicated, the hardware and the operating system. Sybase splits systems into four categories. A small departmental scheme starts at $7,200 for each replicated database. Replicating an IBM DB2 mainframe database costs $70,000, Mirani said.

But for some applications, Microsoft's one-two punch of capability and low price is hard to turn away, Jennings said. As a result, he has recommended that National Semiconductor Corp., one of his major clients, switch from Sybase to Microsoft, he said.

Users of Microsoft's existing database, SQL Server 4.21A on Windows NT, can trade up to Release 6.0 for free when the product ships in June, said Gary Voth, senior product manager for corporate and network systems at the firm in Redmond, Wash.

And users of SQL Server on OS/2 who buy an NT version of Release 4.21A for $149 can also get SQL Server 6.0 at no charge, Voth added.

Microsoft has not yet announced Release 6.0 fees for new users but does not plan to drastically change its pricing structure, Voth said. The current version of the database is offered as a standalone or as part of the Microsoft Backoffice application suite.

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Design Data Systems Corp. has announced SQL Time Materials Management, a suite of Oracle Corp.-based client/server applications for purchase orders, inventory management, accounts payable and requisitions.

According to the Largo, Fla., company, SQL Time Materials Management provides functions for cycle count processing, usage tracking and overrides, intelligent replenishment and multiple-bin storage management.

Low stock alerts can be set for shipments, receipts, shrinkage and transfers.

Prices start at $17,500.

▶ *Design Data Systems*
(813) 539-1077

Vantive Corp. has announced Vantive Sales, a sales and marketing information system.

According to the Mountain View, Calif., company, Vantive Sales targets internal sales and marketing departments. It offers dial-up links for sales personnel or customers who need to remotely access corporate information.

The product provides data management, workflow routing and reporting. Supported sales areas include targeted campaign development, sales opportunities, call management, marketing fulfillment and performance reporting.

Prices start at $55,000 for 10 concurrent users.

▶ *Vantive*
(415) 691-1500

Createprint of America has announced Createprint Electronic Forms Software (EFS) 5.1 for IBM's AS/400.

According to the Canoga Park, Calif., company, Createprint EFS 5.1 provides packaged PostScript from Adobe Systems, Inc. and ASCII pass-through features as well as duplex printing support.

The PostScript feature lets a complete print job be sent to a single job stream so users can address LAN printers from platforms outside the AS/400 network. ASCII pass-through lets users send job streams to an ASCII printer without using a proprietary protocol box.

Prices start at $4,000.

▶ *Createprint of America*
(818) 992-4028

4th Dimension Software has announced Control-O/PC 2.0, software for automating systems operations.

According to the Irvine, Calif., company, Control-O/PC 2.0 uses the OS/2 Presentation Manager as a consolidated point of control for managing remote or unattended operations for mainframe and midrange systems.

The product manages all system-level activities from initiation to shutdown. The software uses exception-based management so that only the most important events are presented to the operator.

Prices start at $11,000.

▶ *4th Dimension Software*
(714) 757-4300

Thursby Software Systems, Inc. has announced TSSnet for Novell, Inc.'s NetWare, software that connects NetWare users to Digital Equipment Corp.'s OpenVMS, VAX/VMS and Pathworks users.

According to the Arlington, Texas, company, TSSnet features LAN and WAN terminal support, file access to NetWare files from any OpenVMS system, file access to OpenVMS files from DOS or Macintosh NetWare clients, a mail gateway and remote printing.

The product is server-based and uses standard Digital protocols. All NetWare servers and OpenVMS systems on the network are provided access.

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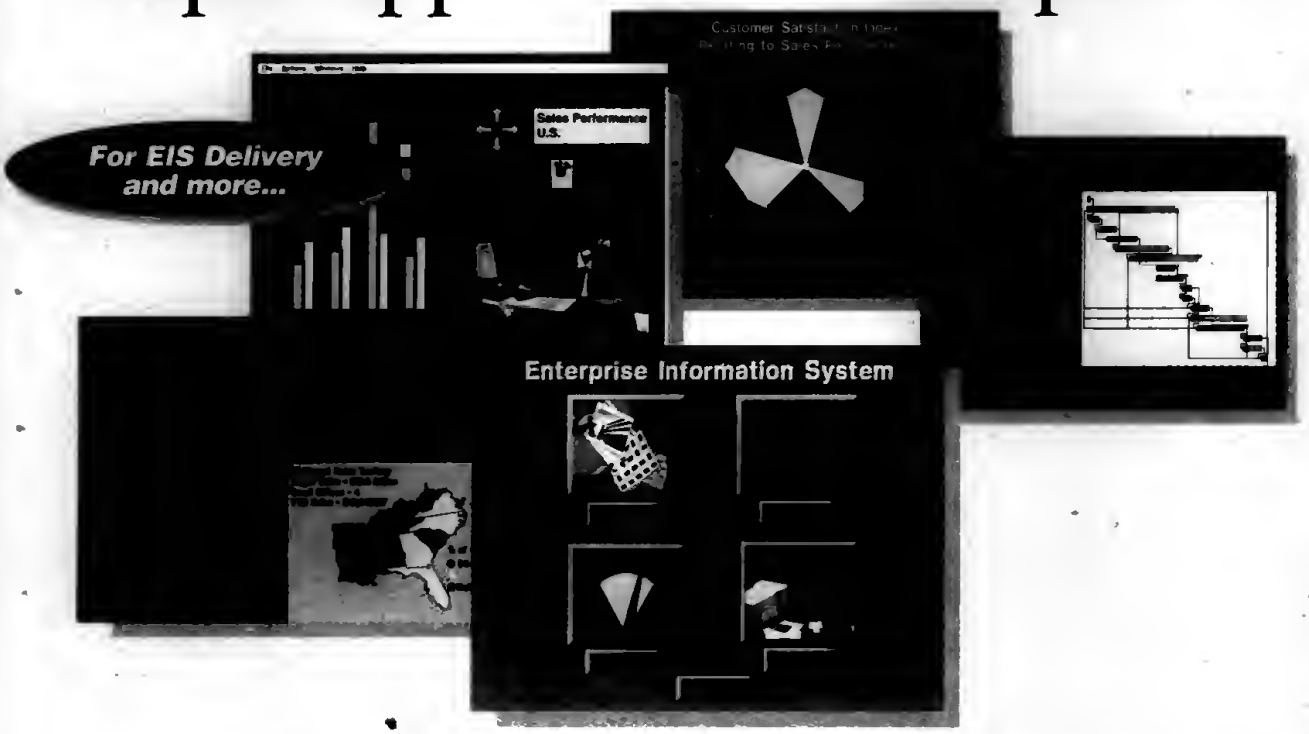

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Unique contract helps outsourcing process

By Elizabeth Heichler

Elf Atochem North America, Inc. may have better tools for managing its outsourcing relationship than most companies thanks to a deal it recently struck that calls for Keane, inc. to maintain its legacy applications.

The Philadelphia-based chemicals manufacturer took the unusual approach of drawing up its own contract specifying both technical and business terms and sending it out to the vendor community as part of the request for proposals (RFP) process.

The level of detail in the contract also provides internal managers with a mechanism for managing the outsourcing vendor, explained Claude Marais, director of processing services and planning in Elf's information systems division.

Atypical role

Typically, companies do not give vendors such a complete description of their requirements when asking for proposals. Outsourcing contracts are usually short, sketchy documents produced by the vendor — not the customer, said Susan H. Nycum, a partner at the Palo Alto, Calif., law firm of Baker & McKenzie.

"We went out with a proposal that included the contract. And how vendors responded to that was part of the decision process," Marais said.

The four-year, $4.3 million application outsourcing contract calls for Boston-based Keane to maintain and support Elf applications that run on a range of platforms, from PCs to IBM AS/400s to mainframes. These applications include manufacturing planning, order processing, purchasing, accounts payable and receivable, inventory, sales, sales reporting, fixed assets, international accounting and environmental reporting.

Out with the old

The driving force behind the applications outsourcing was Elf's migration to client/server systems based on SAP AG's R/3 product suite, Marais said. Maintenance of the legacy systems was outsourced so internal IS staff could focus on retraining and building their skills on the new systems, he said.

Implementation of the new system will begin in July and continue during the next two or three years until it is complete companywide.

"When we started to do outsourcing, the biggest issue we found was that the group that would be managing it had a hard time deciding how to manage the vendor," Marais said. "The contract process can help. We wrote it in such a way that our people could fill in the blanks [depending on the system being outsourced]. It shows how to manage the vendor and establishes performance criteria."

There are 15 to 20 performance criteria for each system being outsourced, Marais said. Generally, they involve how quickly changes are made to systems, the availability of systems and how quickly problem resolutions are obtained, he said.

It is particularly crucial to establish mechanisms for risk management when managing a service agreement, Marais said. Elf's contract, which Nycum drew up, incorporates Marais' idea for risk-sharing: If performance criteria established in the contract are not met, the vendor's profits in the deal will be cut.

And as Nycum said, "You don't want to win the battle and lose the war with a vendor who wants to accommodate you."

Marais said Keane was very flexible in negotiating and appreciated that it was becoming a partner and had to share the risk. The outsourcing work, which began in November, is now up to speed.

By Marais' measure, the project is a success.

"I never hear about it," he said.

Elf Atochem North America, Inc., Philadelphia

Challenge:
To outsource legacy applications maintenance to Keane, Inc. to allow IS staff to focus on training and application development on client/server systems based on SAP technology.

Strategy:
Drew up IS services contract before the RFP process began; let procurement officials fill in the blanks to set acceptable services criteria for the different systems being maintained. Elf's contract includes risk-sharing provisions that cut into Keane's profits if performance targets are missed.

Results:
A clearer understanding of requirements all around – and a much shorter services procurement process than usual.

Data access matrix identifies user/tool profile

By Rosemary Cafasso

The Georgia Institute of Technology in Atlanta is rolling out query tools to cap off a $1.2 million data warehousing project that it calls the Constituency Information System (CIS).

Georgia Tech launched CIS more than two years ago to track fund-raising and alumni activities, said Patrick Mahoney, an information systems manager and director of CIS.

Mahoney said the key issue today is getting the right front-end data access tools to users to meet their various needs. He has created a data access matrix that identifies eight types or classes of users, how they relate to the database and what type of tool best serves their needs. Mahoney said the matrix is intended to help prevent IS failures caused by giving users the wrong tools or creating a climate where "they can screw up the system."

"The purpose of the matrix is so management can understand that a programmer is different from an administrator, who is different from a data entry clerk and end users. They all have different characteristics," Mahoney said.

Frank McGuff, a director at Bruno Technology Group, a Chicago-based consulting firm that focuses on warehousing projects, said Georgia Tech's approach to query tools is "a little bit on the unusual side."

"A lot of IS shops are trying to focus on a single tool that will make everyone happy," McGuff said. "This is reality-based and a good idea."

Yet McGuff and other analysts also say the trick is to avoid flooding the user community with too many tools, which would create an IS support nightmare.

"It's a balancing act," said Richard Creeth, president of Creeth Richman & Associates, Inc., a consulting firm in Norwalk, Conn. "If they are the right tools, then the user understands and needs less support. It is worse for IS if they don't understand the users' needs."

Mahoney said an executive information system is being installed for management-level users. And Esperant, a SQL query tool from Software AG of North America, Inc., will be rolled out to users who have some technical experience. Esperant was designed as a bullet-proof query tool — it prevents users from creating incorrect queries — but still requires some technical know-how, Mahoney said.

For its part, the warehouse is built on a server-based Software AG Adabas database and works with a series of fund-raising applications from Business Systems Resources, Inc. (BSR) in Waltham, Mass.

The university had been relying on several separate databases to track fund-raising activities, said John Carter, a vice president and executive director of Georgia Tech's Alumni Association.

"In the past, we never had a system to pull up everything that someone had done," Carter said. "It was scattered all over campus." The new system "will allow us to within seconds see what a person has done," he added.

The project is being run by the Georgia Tech Foundation and coordinated through the Office of External Affairs, which works with the different gift-giving communities.

What tipped the scales

Mahoney said Software AG played a big role in this project — beating out such competitors as Oracle Corp. — not only because it provides what he considers a solid server-based database management system. Also, "there is a lot of application software that runs on Software AG," he said.

"Oracle is a screaming database, a wonderful database," Mahoney said, but Georgia Tech felt that Software AG's database worked better with the fund-raising application software, he said.

The warehousing project included loading the Software AG database with end-user information on gift giving and other activities from a variety of campus databases. The warehouse will contain information on about 140,000 corporations and 100,000 alumni pooled from operational systems. It should include data on even well-known graduates such as former President Jimmy Carter.

A sample of database access requirements for users in a Unix-based client/server environment

Programmer	Relates to database in terms of data structures and programming constraints	•Database-specific language
End user	Typically not computer-literate	•Application software requiring little input •Windows/Macintosh interfaces to database
Manager	Wants concise, accurate and timely data	•On-line GUI-based executive information systems

Source: Patrick Mahoney, IS executive at Georgia Tech

Bank re-engineers to fight Mexican inflation

Abaco Grupo turns to Microsoft development kits

By Thomas Hoffman

Ever since the Mexican government announced a devaluation of the peso last December, the currency has fallen more than 50% against the U.S. dollar, and interest rates have skyrocketed by nearly 100%.

To help insulate its loan customers from runaway inflation, Abaco Grupo Financiero recently began developing applications designed to let customers restructure their payments over longer periods of time.

For example, since late February, 70 programmers at the Monterrey, Mexico, bank have been using Microsoft Corp.'s Visual Basic, SQL Server and Visual C++ application development tool kits to re-engineer the consumer loan systems in order to protect clients from triple-digit interest rates.

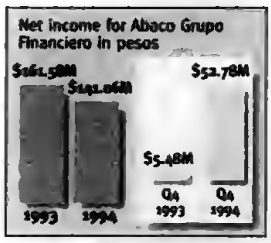
"All [Mexican financial] institutions are trying to [restructure their loan portfolios] at this time, but the tools we're using give us the advantage of developing these applications very quickly," said Jorge Reyesvera, manager of research and development at Abasis, the bank's information technology arm. He said he expects the consumer loan applications to go live later this month.

Jorge Reyesvera *of Abaco says the bank had to restructure its systems to survive*

Upgrade was needed

Abaco's reliance on Microsoft's application development products is not new. When the bank was privatized in 1991, it inherited a handful of IBM 4361 mainframes and a few isolated Unix boxes. To deliver information in a more timely fashion, the bank has invested $30 million since 1991 to develop a client/server technology infrastructure — an approach that has become common among Mexican banks — using Microsoft's application tools.

In contrast to their Third World setting, Mexican banks have developed fairly sophisticated information technology architectures, according to banking analysts. This is due in large part to the North American Free Trade Agreement (NAFTA), which has forced Mexican banks to develop products and services quickly in order to remain competitive with multinational banks that are now muscling in on their once-exclusive turf.



Before NAFTA, Mexican banks "existed in an insulated, regulated environment," said Deborah Williams, a technology analyst at The Tower Group, a Wellesley, Mass., banking and technology consultancy. Mexican banks "are really under time pressure to get products to market," Williams said. So the use of client/server systems to speed product development has become more critical than ever, she said.

For example, Abaco's first major post-privatization project was the development of a point-of-sale (POS) system that supports more than 140 types of financial transactions. Using Visual Basic, Visual C++ and SQL Server, Abasis developed a 55-teller Windows-based POS system in less than a year. It now runs at 200 branches on more than 1,000 teller PCs and is back-ended by a Sybase, Inc. SQL Server that runs on a Hewlett-Packard Co. HP 9000 machine, Reyesvera said.

Money in the bank

Because the branch databases are connected to one another, Abaco and non-Abaco customers alike can cash checks and transfer account balances from the branch of their choice.

The distributed POS system has helped the bank save more than $200,000 annually on mainframe maintenance costs since the last IBM 4361 was scuttled in March 1993. More importantly, the POS system has enabled Abaco to increase customer service levels and drive new business, Reyesvera said.

"In this competitive market, if we hadn't developed this POS system, we would have gone out of business," he said.

Repository

Client/server tool kit improves management

By Elizabeth Heichler

■ Early users of LBMS, Inc.'s new Object Manager report that the repository adds some much-needed management capabilities to PowerBuilder and Visual Basic.

In its first release, the Houston-based company's Object Manager is intended to serve as a combination repository, version control and configuration management tool for client/server developers. It provides a home for files created by PowerBuilder from Powersoft, a unit of Sybase, Inc., Microsoft Corp.'s Visual Basic, Software Quality Automation, Inc.'s TeamTest, database schemas and design objects from LBMS' computer-aided software engineering tools.

"Both PowerBuilder and Visual Basic are single-user, and you need additional software to manage them," said Ian Brindle, a business re-engineering consultant at Broadcort Capital Corp. in New York, which beta-tested the product. Object Manager 1.0 appears to offer a single repository for analysis, design and construction data, and Broadcort plans to purchase the tool.

At Whirlpool Corp. in St. Joseph, Mich., senior software engineer Doug Wing is using Object Manager 1.0 to manage base classes he is developing in PowerBuilder. "With PowerBuilder, you're relegated to check-ins and check-outs from a LAN drive," he said. Object Manager gives him superior functionality for version control, including the ability to perform a build operation on a PowerBuilder object and set a baseline for that version so it can be restored, Wing explained.

Object Manager should not be viewed as an enterprisewide repository, according to Mike Blechar, an analyst at Gartner Group, Inc. in Stamford, Conn. Rather, its strength is offering a better team repository for low-end client/server development tools, he said.

"Obviously, their intent is to continue to scale up, but until they build a real bridge to enterprise [fourth-generation language] and [third-generation language] technology, that won't be an issue," Blechar said. "This is a very good step forward. It reinforces their role as the leading best-in-breed front end for PowerBuilder and Visual Basic users."

LBMS plans to add an interface to Borland International, Inc.'s Delphi application development product in the third quarter of this year, said David Hsieh, vice president of worldwide marketing at LBMS. Other design environments that LBMS is targeting for inclusion are Gupta Corp.'s SQLWindows and Symantec Corp.'s Enterprise Developer as well as some C++ and Smalltalk tools, Hsieh added.

Available now, Object Manager 1.0 costs $2,000 per workstation.

Borland International, Inc. has announced Turbo C++ 4.5, C and C++ development software.

According to the Scotts Valley, Calif., company, Turbo C++ 4.5 adds five tutorial games with source code and a multimedia QuickTour of C++ programming.

The games let users manipulate the source code to help them learn C programming. The product also supports Microsoft Corp.'s Visual Basic 1.0+ controls and includes Borland's visual programming tools, AppExpert and ClassExpert.

Turbo C++ 4.5 costs $79.

▶ *Borland International*
(408) 431-1000

SunSoft, Inc. has announced SunSoft WorkShop for C++ 1.1, a software development suite.

According to the Mountain View, Calif., company, the suite supports Intel Corp.'s x86 and Pentium platforms.

It includes ProWorks 3.0, the ProWorks Impact 1.0 multithreading development tool, ProCompiler C++ 4.0, ProCompiler C 3.0 and the ProWorks/Teamware 1.0 code management tool. It also comes with Solaris 2.4 for x86.

SunSoft WorkShop for C++ 1.1 costs $695.

▶ *SunSoft*
(415) 960-3200

Gupta Corp. has announced SQLBase 6.0, a database for decentralized applications.

According to the Menlo Park, Calif., company, SQLBase 6.0 includes workgroup features, support for application development and extended capacity handling. Application development features include a graphical user interface (GUI) for administration, stored procedures and triggers, and transparent two-phase commit. The product includes a full suite of GUI debugging and running tools.

Prices range from $995 to $9,995 for the server software and from $295 to $3,995 for the desktop software.

▶ *Gupta*
(415) 321-9500

Confluent, Inc. has announced Visual Thought 1.1 for Sun Microsystems, Inc.'s SunOS and Solaris, an object-based drawing tool for software engineers, technical writers and computer-aided software engineering users.

According to the San Francisco company, Visual Thought 1.1 lets users mix and match desired elements from multiple methodologies or create custom methodologies. The product comes with a library of application-specific, editable palettes.

Visual Thought 1.1 costs $1,295 for a floating license or $695 for a node-locked license.

▶ *Confluent*
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FINANCIALS HUMAN RESOURCES MANUFACTURING DECISION SUPPORT

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Management

Better care, lower costs by integrating institutions and information

By Maggie Kennedy

Whatever you do, don't have a heart attack in Jackpot, Nev. There isn't a hospital, not even a doctor, in this tiny gambling town just over the Idaho border. The nearest hospital, Magic Valley Regional Medical Center, is 45 miles away in Twin Falls, Idaho.

But Magic Valley's chief information officer, David E. Garets, hopes integrated care will increase the odds of survival.

In the future, Garets says, an emergency medical technician (EMT) or nurse in Jackpot will be able to run an electrocardiogram over an Asynchronous Transfer Mode or T1 line to a cardiologist in Twin Falls. A bar code or magnetic strip on the victim's health plan card could provide medical information on the patient, as could a portable computer connected to a computerized patient record.

Once the EMT administers the drugs and dosage suggested by the cardiologist — with guidance from the patient record system — an ambulance could take the now-stabilized patient to Magic Valley.

This network of health care providers in southern Idaho and northern Nevada is just one example of the integration fever sweeping America's health care industry. Integrating computer systems is only the underbelly of integrated care.

The trend is really about integrating all kinds of health care service providers (hospitals, health maintenance organizations, doctors, visiting nurses, ambulance services, etc.) and others with a stake in health care (insurance companies, government agencies and employers) so that they act like a single institution providing a full range of cradle-to-grave care. The goal is better quality care at a lower cost.

It's a vision much like the "virtual companies" that manufacturers talk about forming — but the health care industry has moved beyond talk. A 1994 Deloitte & Touche survey of 1,200 hospital executives found 81% expect their hospitals will either merge or form alliances with other health care institutions in the next five years.

This is such an information systems-dependent game that health care IS managers say that integrating systems across separate facilities is their top job for the next two years. This

Integration fever, *page 84*

G. Ward Keever, senior vice president of IS at the Medical Center of Delaware in Wilmington

There's only one way to survive in the health care industry today: cooperate and integrate. IS is the Rx for the industry's new information needs.

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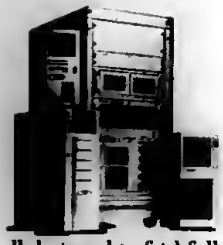

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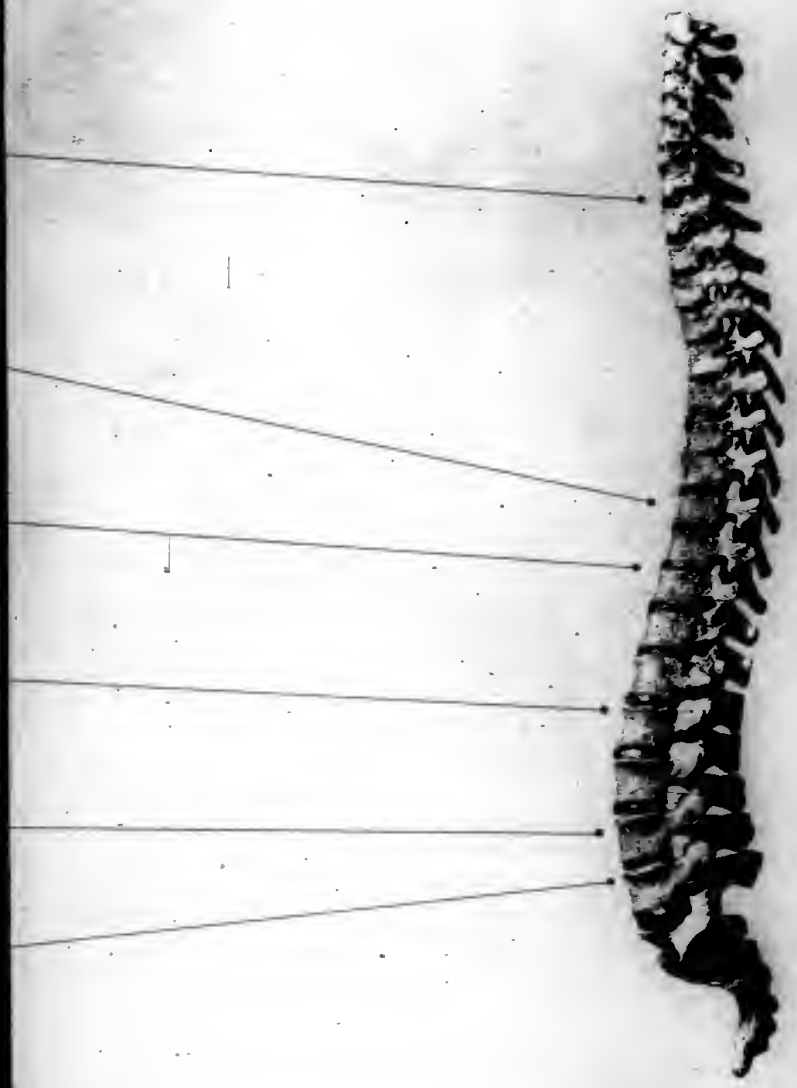

Fig. 1 Backbone

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Integration fever

CONTINUED FROM PAGE 81

includes linking providers so that information such as patient histories, clinical protocols and financial, human resources and administrative data can be exchanged and that usage, costs and patient outcomes can be tracked.

All this activity is driving up IS spending in health care. IS spending in acute care hospitals, including their associated inpatient and ambulatory services, increased 10.2% from 1993 to 1994, from $4.9 billion to $5.4 billion. IS spending is expected to grow another 13% to $6.1 billion this year, according to preliminary estimates for 1995, says Mitch Work, a senior vice president at Dorenfest & Associates, a Chicago-based health care IS market researcher and consultancy. These numbers are based on interviews at nearly 3,000 hospitals with 100 beds or more. That increase is well ahead of the rate of inflation or health care IS spending in the late 1980s and early 1990s.

> "Health care is the most disjointed industry that I have ever seen in terms of information exchange. Every hospital, doctor, insurer and independent lab has its own set of information, and we don't do a very good job of sharing it."
>
> **G. Ward Keever, senior vice president of IS at Medical Center of Delaware**

The problem, however, is these facilities are having difficulty paying for the needed technology.

"None of us can afford it. The technology is extremely expensive. We're in a catch-22 here. As we move into managed care, there are less capital dollars available because the margins are being squeezed. Yet the demand for information technology is growing at the same time," says Garets, who is funding Magic Valley's efforts with government grants [CW, March 28, 1994].

And as more organizations join integrated networks to trim their costs for health care, they will add to the growing cost of building the needed IS architectures.

"It's like putting in the foundation of a house. Every six months, someone adds another 2,000 square feet to the first floor, and you have to keep working on the foundation," says Edward Kopetsky, senior vice president of information services at Sharp HealthCare in San Diego. "If the requirements for the foundation keep growing, you never have the money to put up the second story."

Yet despite worries about how to pay for these systems, IS managers are getting the green light for these infrastructure and application development investments. Why are health care chief executive officers opening their purses? It's simple: They have little choice.

The industry's old fee-per-service-rendered economics is on its way out. Now that employers and insurers increasingly insist on paying caregivers a flat fee for every person covered, providers must manage costs carefully to make money. No wonder it's called managed care.

Although integrated health care will save lives, the real reason America's health care institutions have caught integration fever is to save their own necks.

"In order to make money, hospitals will have to be substantially more efficient in their delivery of their products and services than they have been historically," Garets says.

High-quality care attracts doctors and patients, of course. But from a cold hard cash perspective, the power of integrated care is the power to reduce costs by eliminating redundant administrative processes and pooling medical resources.

And that's the force behind the changing health care landscape: for-profit chains such as Columbia/HCA Healthcare and Kaiser Permanente Health Plan, Inc. are prowling for hospitals and health care providers that they can acquire.

Community health information networks (CHIN), which are made up of providers, payers and public agencies, are forming or are in the planning stage in many states, including Texas, Illinois, Ohio, Missouri, West Virginia and Delaware.

Insurers are setting up their own integrated health care institutions. For example, Blue Cross and Blue Shield of New Jersey announced it is developing a statewide integrated health care delivery system containing 10 primary care family health centers. But the drivers behind institutions can be anyone — hospitals, physicians groups or HMOs.

"No one can really say there's a model that we're all aspiring to be, but we're all going as fast as we can to accomplish it," says G. Ward Keever, senior vice president of information services at Medical Center of Delaware (MCD) in Wilmington.

The model that Keever and other MCD executives have in mind is an IS-based web of relationships.

"One of the real differences between the '80s and the '90s is that 10 years ago we were all trying to optimize our core competencies, be it a cancer center, cardiac care or women's health. Now I think the way to survive is to optimize relationships," Keever says.

As Keever sees it, a patient would be able to enter the network anywhere, and health care staff — be they medical staff members, admissions clerks or financial officials — could obtain information on the patient. Information on prior visits, prescriptions and allergies, for example, would all be accessible.

Reaching far and wide

Keever is creating an IS infrastructure that all health care institutions in northern Delaware and surrounding areas can use — the glue that holds the region's health care together. Using T3 lines to larger institutions and Switched Multimegabit Data Service lines (Integrated Services Digital Network on demand) for smaller ones, the community health information network includes 4,000 nodes in two hospitals, MCD's primary care satellites and administrative offices, visiting nurse association offices and the state home health agency. Beginning in May, doctors will be able to dial into the MCD network from their offices.

The infrastructure will be available to everyone, but not all applications will be. Cooperation does not preclude competition as hospitals, HMOs and insurers build alliances with doctors, home care, independent laboratories and other providers and run applications among them. But the CHIN will carry them all.

At Sharp HealthCare, acquiring relationships through mergers and acquisitions is a big part of the model. Sharp is competing against four other integrated health care chains in the San Diego area and is working to "attain a presence throughout the whole geographic area," Kopetsky says. Currently, Sharp encompasses six acute hospitals, nine affiliated medical groups, four skilled nursing facilities and a specialty hospital.

Kopetsky is expanding the IS infrastructure to Sharp's new acquisitions and developing information systems to manage and track patients through these various facilities, such as registration and scheduling systems, as well as

WHAT

Health care IS [illegible] as their [illegible]

FRUSTRATION

- Lack of strategic IS plan
- Complaints from clinicians [illegible] not easy enough to learn [illegible]
- Lack of available software [illegible]
- Deficiencies in department [illegible]
- Lack of CEO support for IS
- Application development backlog

Source: 1995 Healthcare Information [illegible] (HIMSS), Chicago, Hewlett-Packard [illegible] 1,000 participants at the [illegible]

BY POPULAR DEMAND

IS managers in the health care industry say their [illegible] requirements in the next two years will include the [illegible]

ISSUE	[illegible]	[illegible]
Integrating systems across separate facilities	33%	[illegible]
Implementing a computer-based patient record	[illegible]	[illegible]
Upgrading network infrastructure	[illegible]	[illegible]
Re-engineering to a patient-centered computing environment	[illegible]	[illegible]
Upgrading application software	[illegible]	[illegible]

Source: 1995 Healthcare Information and [illegible] Hewlett-Packard Leadership Survey of nearly 1,000 [illegible]

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(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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integrating the clinical systems.

"It makes sense to have clinical information integrated so physicians don't duplicate tests or prescribe medications that will counteract with other medications the patient is on," Kopetsky says.

For Aurora Health Care in Milwaukee, integrating clinical systems is a way to attract the top primary physicians in its region and win contracts to provide care. Building electronic linkages that allow easy exchange of lab reports, X-rays, etc. is one IS strategy Aurora is using to attract these sought-after providers. Toward that end, Aurora partnered with Ameritech Corp. in Chicago to create the Wisconsin Health Information Network, giving physicians direct access to lab results and other patient information.

To further lure physicians into the network, Jack A. Steinman, vice president of information services, says vendors wanting to work with Aurora are asked to demonstrate how they can help individual physicians automate their own records.

At Magic Valley, Garets says they're part of the larger community vision of "becoming the healthiest place in America" even though Idaho ranks last in the nation in doctors per capita and his region is one of the most rural in America.

To attain that goal, the Magic Valley CHIN is targeting the five leading reasons for hospital admission in its region. It also plans to provide systems that allow easy, mobile entry of patient data at the point of care, such as wireless, pen-based portable computers.

The CHIN plans to collect regional data and national studies, create best practice protocols for effective treatment at a low cost and provide on-line recommendations and information to whomever is treating the patient. Thanks to such systems, "caregivers are empowered, and people get better health care in the short term," Garets says.

Should someone suffer a heart attack, the patient can be treated on-line by any cardiologist in the region — even in Jackpot, Nev.

There is no shortage of models, but there is also no shortage of barriers for IS managers charged with turning these models into realities.

Blocking the way are inadequate technologies, a lack of definitions and standards, traditional reliance on paper and cultural barriers that arise when organizations, sometimes former competitors, sit down at one table.

"Health care is the most disjointed industry that I have ever seen in terms of information exchange. Every hospital, doctor, insurer and independent lab has its own set of information, and we don't do a very good job of sharing it," Keever says.

Hurdles to overcome

The cultural and political barriers can also be immense. John P. Glaser, vice president of information services at Brigham and Women's Hospital in Boston, says developing an IS strategy can become complicated when providers "suddenly come together."

Providers often have different agendas or priorities, Glaser says. And political turf battles can erupt among CIOs.

Kopetsky shares that view. He says political hurdles can particularly be a problem when providers are affiliated but not formerly integrated.

The business and IS strategies also differ with each integrated care provider, depending on who leads the effort and the level of competition in each locale.

Another hindrance is that few vendors offer newer technologies or provide the total solutions that health care needs.

"The dilemma is that most of the technology is 1980s or 1970s technology simply because the new technologies have not been adopted by the existing vendors," Garets says.

"The new technologies have been out for quite a while, and yet the vendors have taken forever to adopt them. Most of the vendors are just moving into the object-oriented environments, and they're still not to the point where they need to get," Garets says. "It takes them forever to develop systems, and those systems cost an enormous amount of money. So I'm worried about how much it's going to cost to put in old technology. And then once I put it in, how long is it going to take them to get to the new technologies that I really want right now, and then what is it going to cost me going forward?"

To develop the needed technology, many organizations are entering codevelopment efforts with select vendors.

But selecting the right vendor partner can be like "betting on futures," according to Erica Drazen, vice president and director of Arthur D. Little, Inc. in Cambridge, Mass.

Garets agrees. He says the large, established vendors haven't picked up the new, more efficient technologies, and he worries about the risk of contracting with an unestablished company.

But even when the technology is there, Garets says various providers have difficulties sharing the information, whether it is financial or clinical. A key force driving integration — competition — also hinders it.

Even at Magic Valley, where the emphasis is on community involvement, "there is a big conflict between the rhetoric of wanting to improve the health status of people in the community and wanting to make sure you stay competitive," Garets says.

> "If your information is integrated, that's an incentive for physicians to link up. If you have information that is clear, timely and not fragmented, that's an incentive for customers to enroll in your health plan."
>
> **Edward Kopetsky, senior vice president of IS at Sharp HealthCare in San Diego**

Despite all the obstacles and difficulties, however, Garets says the changing landscape in the health care industry gives providers no choice but to move toward integrated networks.

"What will make this all happen is the move to managed care and capitation. To get business going forward in order to make money, hospitals will have to be substantially more efficient in their delivery of the products and services than they've been historically," Garets says.

Health care IS managers don't expect to get much sleep in the nights ahead as they toss and turn over which vendor to go with and how to ease political turf battles. But the field has acknowledged that managed care in some form is the wave of the future. If the community hospital, physician or insurance company is going to survive into the next decade, they need to link up so they can provide the most cost-effective, comprehensive package of services to patients. ■

Next week: Integrated health care depends on computerized patient medical records. But building such computerized records may be the toughest challenge in IS today.

Kennedy is a freelance writer in Chicago. Rochelle Garner, a freelance writer in San Carlos, Calif., contributed to this report.

MIND OVER

While most health care
still made only initial
the interest is there

26% Have invested
software
10% Have
25% Have
any
33% Are still
any decisions
6% Do not plan to

Source: 1995 Healthcare Information
Society (HIMSS), Chicago,
of nearly 1,000

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Intelligence Files

Lessons from Kobe

The Kobe earthquake hasn't shaken one Japanese executive's faith in just-in-time manufacturing, but it has brought home one other important lesson: the need to improve the flow of information when disasters strike.

Mitsubishi Motors Corp. was able to assess the damage to its direct supplier, but not the effect on its suppliers' suppliers, said Toru Sakai, a board director at the automobile manufacturer. Another problem was the lack of information from the government about the condition of the earthquake-stricken region.

"If we have to wait until 3 p.m. to find out whether suppliers can get parts to us, it is too late for us to make a decision whether to stop the assembly line that night," Sakai was quoted in the *Asahi Evening News* on Feb. 20. The automaker was forced to halt production at plants in two major districts, but it was able to resume full operations there four days after the quake.

Mitsubishi does not plan to start keeping excess inventory as insurance against future disasters. Any temporary advantage following a natural disaster would be more than offset by a loss in productivity, he said.

Standards procedure

The National Institute of Standards and Technology (NIST) has approved a federal information processing standard that will help make databases in many government agencies more readily available to the public.

NIST approved the Application Profile for the Government Information Locator Services to create a uniform technical approach for providing information locator services to the public. The standards profile will be implemented in commercial off-the-shelf software products.

For information, contact Eliot Christian, U.S. Geological Survey, (703) 648-7245, fax (703) 648-7069, electronic-mail: echristi@usgs.gov.

The envelope, please

Three professional associations are seeking the best and the brightest among information systems professionals. Upcoming awards will recognize innovation, achievement and leadership.

The Innovative Thinking Network (ITN) in Santa Barbara, Calif., and Tom Peters' "On Achieving Excellence" newsletter are cosponsoring the first World Class Innovator Award and competition.

The award will honor and encourage innovative efforts in businesses, associations, organizations, schools and government agencies, much like the Malcolm Baldrige Award for quality and excellence.

Applicants will be assessed on their innovation processes by a panel of experts led by James M. Higgins, a Rollins College professor and author of *Innovate or Evaporate — Test and Improve Your Organization's Innovation Quotient*. Each applicant will receive a copy of Higgins' book.

Winners will receive a trophy designed by glass artist Latchezar Boyagjiev. Winners and finalists will be announced at the Innovative Thinking Conference on April 9-12 in Santa Barbara.

Meanwhile, the National Association of State Information Resource Executives (NASIRE) in Lexington, Ky., is seeking nominations for its 1995 Recognition Awards for Outstanding Achievement in the Field of Information Technology. Applications will be reviewed for information technology initiatives that best help state government officials execute their duties innovatively and provide cost-effective service to citizens.

Awards will be given in six categories:

- Statewide Initiatives/Policy, Planning and Management
- Innovative Use of Technology
- Administrative Applications
- Service Applications
- Networking
- Client/server

Awards will be presented at the 1995 NASIRE annual conference on Sept. 25-27 in San Antonio.

And the Society for Information Management (SIM) is seeking nominations for its Partners in Leadership Award, which honors "the collective effort of visionaries who are turning the future into reality."

The winning partnership must demonstrate how information-enabled innovation of business processes improved quality and speed of service to customers; resulted in shorter cycle times, new products or services; reduced cost; or, in some cases, created completely new business opportunities. SIM will honor the winners at its annual conference in Orlando on Oct. 23.

Nominations must be received by April 4. The nomination must include (in narrative format) a thorough description of a partnership between a senior business and a senior IS executive and the business results produced. For more information, contact SIM headquarters, 401 North Michigan Ave., Chicago, Ill. 60611-4267; (312) 644-6610.

IS knowledge put to the test

The Institute for Certification of Computing Professionals (ICCP) has introduced two new examinations for computing professionals. Available on-line and as a hard copy document, the Microcomputing and Networks exam tests candidates' knowledge of workgroup clusters. The other exam tests knowledge of the C++ programming language.

For more information, contact ICCP at (708) 299-4227 or via CompuServe at 74040,3722.

Calendar

APRIL 16-22

Embedded Systems Conference East. Atlanta, April 18-20 — Focus is on embedded systems products and services. Exhibits cover the full spectrum of development tools, hardware products and services for embedded design. Contact: Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

The Conference on Interactive Marketing. New Orleans, April 19 — Contact: Bender, Goldman Helper, Los Angeles, Calif. (310) 473-4147.

E-mail World & WebWorld. Santa Clara, Calif., April 19-21 — Topics will include enabled mail applications, electronic-mail security and privacy, collaborative computing and groupware, electronic commerce and electronic data interchange, E-mail infrastructures and E-mail directories. Web topics will include "Living in the Web-User Perspectives," "Building Web-Access and Information Providers," "Weaving In Information Providers" and "Weaving in Information Space-Developing Web Environments." Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Future Directions of Enterprise Resource Planning Systems. Las Vegas, April 20-21 — Event is sponsored by Plant-Wide Research Group. Contact: Plant-Wide Research Group, N. Billerica, Mass. (508) 663-0212.

APRIL 23-29

The Evolution of Object Methods. Chicago, April 24; New York, April 25; Dallas, April 27; San Francisco, April 28 — Focus will be on the unification of object-oriented methods and the state of object methodologies. Contact: Rational Software Corp., Santa Clara, Calif. (408) 496-3600

Patricia Seybold Group's 1995 Distributed Object Technology Forum: Using Objects, Middleware and Workflow to Reinvent the Enterprise. Cambridge, Mass., April 25-28 — Contact: Patricia Seybold Group, Boston, Mass. (617) 826-2424.

MES Roundtable Seminar. San Jose, Calif., April 26-27 — A two-day seminar and exhibition to discuss the benefits of Manufacturing Execution Systems (MES) software for real-time shop floor control. Contact: Manufacturing Execution Systems Association, Pittsburgh, Pa. (412) 781-9511.

IS Controllership for Centralized and Distributed Processing. Colorado Springs, April 26-28 — Topics will include the financial management of IS organizations, such as the nature of IS financial information, financially managing IS as a business, financial planning, cost controls such as chargeback, pricing IS services, activity-based costing, product costing, financial benchmarking, cost/benefit analysis and current IS financials. Contact: Financial Management for Data Processing, Colorado Springs, Colo. (415) 731-3706.

APRIL 30-MAY 6

Client/Server Computing: The Next Generation. Fort Lauderdale, Fla., May 1-3 — Contact: Ashley Pearce, Gartner Group, Inc., Stamford, Conn. (203) 967-6757.

ISINM '95. Santa Barbara, Calif., May 1-5 — Fourth IFIP IEEE International Symposium on Integrated Network Management (ISINM) Workshop. Contact: Mary Olson, ISINM '95 (805) 569-1222.

Summit examines hot technologies

Client/server technology, mobile/wireless technology and next-generation databases will be explored in depth at the Executive Technology Summit on May 3-5 in Phoenix.

The summit is sponsored by the Society for Information Management (SIM) and *Computerworld*. This year's topics were chosen by information systems executives in a Summit '95 survey.

Sessions will be led by Howard Anderson, managing director of The Yankee Group; Alan Alper, editor of *Computerworld*, *Client/Server Journal*; Andrew M. Seybold, editor-in-chief of "The Outlook on Mobile and Professional Computing"; and Richard Finkelstein, president of Performance Computing, Inc.

In addition, William J. Caffery, vice president of the Advanced Technology Strategies division of Gartner Group, Inc., will discuss emerging technologies, integrating new technologies into existing applications, assessing strategic benefits and justifying purchases by bottom-line results. Joe Coates, president of Coates & Jarrett, Inc., will discuss the future of IS in the short and long term.

Information is available from SIM headquarters, 401 N. Michigan Ave., Chicago, Ill. 60611, telephone (312) 644-6610.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

David Weldon, Associate Editor/Management, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-8931.

BY GARY H. ANTHES

GREAT EXPECTATIONS

AWARD-WINNING AI SCIENTIST RAJ REDDY FORESEES A FUTURE OF INTELLIGENT AGENTS, VOICE INPUT AND NEAR-REAL-TIME DATA FLOWS

"ARTIFICIAL INTELLIGENCE CONTINUES TO BE A POSSIBLE DREAM WORTHY OF DREAMING," Raj Reddy said recently when he accepted the 1994 A. M. Turing Award from the Association for Computing Machinery.

The award was given to Reddy and Edward Feigenbaum, chief scientist at the U.S. Air Force, for "pioneering the design and construction of large-scale AI systems and demonstrating the practical importance and potential impact" of the technology.

Reddy, dean of the School of Computer Science at Carnegie Mellon University in Pittsburgh, is known worldwide for his pioneering work in speech recognition and for founding the university's Robotics Institute. Reddy's work has also encompassed human-computer interaction, understanding systems, multimedia, collaboration technologies, just-in-time learning and automated machine shop technologies.

Computerworld senior editor Gary H. Anthes spoke with Reddy at Carnegie Mellon soon after Reddy received the Turing award.

Great expectations, ***page 90***

CONTINUED FROM PAGE 89

CW: Some say artificial intelligence has failed to live up to its promises. Do you agree?

REDDY: Who made these promises? As far as I know, no one has promised anything other than that we will create artifacts that exhibit intelligence, [and we have done that] going all the way back to the 1950s. But has AI solved all problems that [require] intelligence? No. There are still a lot of things we don't know how to do.

CW: Such as?

REDDY: Can we create a computer program that can read a chapter in an accounting book, understand it and then answer the questions at the end of the chapter? No, we don't know how to do that, although it seems a relatively straightforward thing.

Now, suppose I'm going to assemble a motor. I want you to look at what I'm doing and do the same thing. Within a few days, you'd be as good as I am. But we do not know how to build a computer program that can look over the shoulder of a person doing a physical assembly task and teach itself to do the same thing.

CW: Are those kinds of problems fundamentally insolvable?

REDDY: No. There are a large number of problems we don't work on because we don't have the money to work on them. But any task you'd like to see done can substantially be done by a computer, provided enough time and resources have been expended to solve the problem.

For instance, what is humor? Why do you laugh? It is not obvious how to write a program to create jokes. It is not obvious because we have not worked on it.

But if you give me $1 million a year, and come back in three years, I promise you I will have made some progress.

CW: What major developments in AI will we see in the next five to 10 years?

REDDY: We will see a broad class of things called intelligent agents. A nonprogrammer will say [to a software agent], "I want you to look at my bank balance and let me know if I am going to get into trouble with an overdraft and automatically transfer money from my savings account." Or you have a budget to manage, and you'd like an [agent] to look over everyone's expenditures and tell you of any situation out of the ordinary.

You'll be able to buy these agents [as you would] templates for spreadsheets.

CW: Building those agents sounds as difficult as some of the other things you've mentioned.

REDDY: Agents use the new style of AI, which uses the "80/20" rule. Rather than trying to do the whole job and telling people to wait forever, do 80% of the job and let the person take care of the other 20%. It's a completely different class of thing.

CW: How does the agent know what 20% to leave to the human?

REDDY: How a computer can know what it does not know is a fundamental philosophical question. Suppose you asked, "Is Reagan standing or sitting right now?" A computer program with a huge database of facts might read terabytes of information and after a few weeks say, "I don't know." But a person seems to know [the answer] immediately.

It's a hard problem, but progress is happening. Whether serious progress will be made in the next five to 10 years depends on whether that becomes a serious problem for someone who is getting paid.

CW: What's coming in the corporate world?

REDDY: The answer is agents again. We are all getting swamped with information. Agents will monitor things, read and understand content, filter the information and tell you, "This is important; you'd better attend to it now." These exist now in a primitive form [in commercial electronic-mail filters, story filters used by news wire services, etc.], but they need to get smarter.

Also coming is data mining. There is a lot of information coming in, and there are nuggets of intelligence that you need to draw out and use to run your business. Wal-Mart does that every day [to optimize inventories]. Wal-Mart has a high-bandwidth network connecting all its stores. By the end of the day, all the sales data from every store comes into a single computer which then ... interprets the data and says, for example, "Why is this green dress selling so much faster in Boston than in Phoenix?"

It's because it's St. Patrick's Day and there are a lot more Irish in Boston. So at the appropriate time, [the computer] would order a lot more green dresses for Boston.

CW: Will the concepts used by Wal-Mart and other retailers spread to other industries?

REDDY: Yes, exactly. Everybody has valuable resources — such as inventory, your time, transportation time or the way you structure your assets. Finding optimum use of your resources is a scheduling logistic problem, which is what AI studies. These are problems too complicated to get into the human brain.

CW: Do you have any advice for corporate information systems managers?

REDDY: They have to put the infrastructure in place — a PC on every desk, even the janitor's. No exceptions. And they have to be networked. The second thing is training. You might be using the computer only for word processing and not know it can be used for scheduling, planning, E-mail, project management and so forth.

CW: Will speech and handwriting recognition technology be much improved in the next five to 10 years?

REDDY: Yes. The progress we've made so far is simply understanding what techniques will work. The progress we haven't yet made in any serious way is making it easy for people to use the technology rather than reject it because it's too painful. That's what happened to the [Apple Computer, Inc.] Newton.

As more computer power becomes available, that power can be used so that no matter what error [the software] makes, it will never make the same error twice. If you give me a PC operating at 1 billion operations per second, which will be available in about five years, I think I can create the necessary software that will make it possible for the system to learn from its errors.

You will be able to dictate a voice message instead of typing it in, and it will be correct 19 words out of 20.

CW: Will voice become the dominant mode of computer input for most people?

REDDY: Absolutely, especially for CEOs and CIOs.

CW: What will factories look like in five to 10 years?

REDDY: To a large extent, they will look the same as now. Ten to 15 years ago, I thought there would be a lot more robots now. The reason that hasn't happened is that a significant number of plant managers and engineers on the factory floor are computer ignorant. There will be changes, but they will be evolutionary, not revolutionary.

CW: What is coming in collaboration technologies?

REDDY: Take E-mail, for example. A mail database is a linear data structure, but what I want is this: I send you and half a dozen others mail, and you all respond to it. I want that to be a hyperlinked tree, so that when I say something I can see all the responses to it and how I responded to the entire thing. I want to be able to go to the answer and see how people arrived at it. So there are hyperlinks to "I said this" and "you said that" and, finally, the resolution.

CW: Will the rate of improvement in computer hardware continue indefinitely?

REDDY: There is no end in sight for at least 10 years. We are doubling in power every 18 months for the same dollar. At that rate, in 13 years we should have a thousand-fold improvement, or a 100-GHz PC for $3,000.

But maybe we won't get there because I may go for a lower-performance but more energy-efficient chip.

CW: People are beginning to think about peta floating-point operations per second (FLOPS) computers, those able to perform 1 million billion calculations per second. Do we need that?

REDDY: Absolutely. You'll need all those cycles. Just to do speech, you'll need a few GFLOPS to do a very good job. Now if you add image processing and image understanding in real time, you need a lot of cycles. And they will be used by everybody. ■

Computer Careers

Electric utilities offer *mixed* prospects

IS HIRING WILL BE SPOTTY AND HIGHLY SELECTIVE DESPITE A RUSH TO OFFER MORE CUSTOMER SERVICES

By Leslie Goff

DEREGULATION IS WASHING OVER THE ELECTRIC UTILITY INDUSTRY and forcing energy providers into a new competitive landscape. In its wake, technical careers are changing.

New business requirements, coupled with emerging communications technologies, are creating pockets of opportunity for people who can help utilities identify and respond to customer demands, operate more cost-efficiently, conserve resources and fend off competitors that are no longer geographically restricted.

"The outlook is extremely good for the business analyst who can apply technology. If you're application-oriented, you're indispensable," says John Myers, director of architecture and network services at The Southern Co., a holding company for five utilities and several power plants in Atlanta.

In the deregulated environment, consumers will be able to choose an energy provider much like they choose a long-distance carrier. And without a guaranteed customer base, utilities are scrambling. "We're about to undergo major changes in how we do business in this industry," says Rick Yee, telecommunications manager at Houston Lighting & Power Co.

New customer services include "smart" thermostats, which are just one option in what's otherwise known as demand-side management (DSM). These devices let customers purchase energy at varying rates, depending on the time of day. "Customers will have more information about how and when to buy energy, and we must put the incentives and the infrastructure in place to allow them to buy at the best times," Myers says.

To manage demand, utilities must identify and track usage by customer and appliance. To do so, they're employing communication and database technologies.

DSM trials, in which a small number of customers beta-test new control devices, are popping up everywhere. Each utility is experimenting with different technologies and architectures from wireless transponders that transmit the information point-to-point to PCs with modems communicating over dedicated hybrid fiber/coaxial lines.

If successful, these trials "will open up a lot of jobs in hardware, software and telecommunications," says Ray Johnson, director of corporate and financial information systems at Entergy Corp. in New Orleans. Entergy is planning a 50-home DSM trial in Little Rock, Ark. But despite such innovations, job opportunities are limited. Staff cuts and outsourced IS functions are happening as rapidly as the implementation of DSM trials. However, utilities recognize the need to import expertise to support the new business environment (see box below).

The near-term limitations won't hold back talented and motivated business analysts, however. They'll be able to carve out a niche for themselves in the industry, IS managers say.

"We certainly need people with the vision to create services that customers will buy," Yee says. "We're looking for idea people who can make those services happen, who can bridge the gap between an idea and reality." ●

Goff is a freelance writer in New York.

[redacted]

Utilities' IS departments are cutting back overall, but IS managers see it as an opportunity to refocus on critical business areas.

● HOUSTON LIGHTING & POWER has trimmed its IS staff from 480 to 300 in the past few years, according to Rick Yee, telecommunications manager. "With some of the downsizing, we're going to see a shift in workloads so that the IS function will have greater strategic value," he says.

● THE ATLANTIC ELECTRIC CO. in Pleasantville, N.J., offered employees voluntary severance packages to trim head count by 375 last year, including a 20% reduction of its IS staff, says Jim Hare, a systems analyst. "We're not hiring at all right now. Instead, we're [investigating] faster and better ways to do application development," he says.

● THE SOUTHERN CO. may trim its IS staff by the end of the year, says John Myers, director of architecture and network services. "While we are in the process of helping the company re-engineer the way it does business, we're also looking at how [IS] is run in our company." The Southern Co. plans to outsource noncritical IS functions.

● ENTERGY is in a general downsizing mode, "but we're hiring in specific areas," such as telecommunications, application development and database management, says Ray Johnson, director of corporate and financial information systems. "We need people who bring in some fresh creative skills, who can look at the way something is done and offer suggestions on how to do it better. We're emphasizing that over and above technical skills," he says.

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Programmer Analyst to design and implement client/server applications over computer communication networks using the C and C++ programming languages. Design and develop software to simulate the network layer of the OSI (Open Systems Interconnection) model. Conduct network performance analysis using queueing theory and simulations techniques. Requirements: M.S. in Computer Science, 1 graduate level course each in: 1) Computer communication networks, 2) Queueing theory and simulation. Experience: 3 months in the job offered or 3 months as a Programmer, 3 months of academic or industry project experience in developing software to simulate the network layer and analyze its performance using C and UNIX. Either a graduate level course in object oriented programming with C++ or 3 months of project experience using C++. 40 hrs/wk, 8:00 am to 5:00 pm, $38,000/yr. Send resumes in duplicate (no calls) to J. Devise, JO#: 1018, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, Ohio 43216. Must have proof of legal authority to work indefinitely in the United States.

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HOW DO YOU KNOW WHEN YOU'VE STOPPED DESIGNING & STARTED TINKERING?

BY DAVID A. KELLY

Wain Kellum
Vice president
Omni Training Centers, Inc.
Atlanta

"The answer varies dramatically, depending on [the] technology and the type of application you're deploying. If you're building a complex system such as a manufacturing system, you'll probably work from process and data models. In that case, you're done with design when you've completed the paper models.

"If you're using a prototyping tool, the feedback from users will drive the changes, and you're risking a 'stone soup' syndrome. Before long, you're building something fundamentally different from what you started to build. If you prototype until you've met all the user's requirements, you'll never be done.

"Our solution is not to start any development until we have a complete three- to five-page description of the business purpose of the system. As you prototype, you must continually ask: Is the requested change within the original scope of the business purpose?"

Jared Spool
Founding principal
User Interface Engineering
North Andover, Mass.

"You need a way to tell when you're done [designing a project]. We use something called a usability requirement. It's simple. It's based on a specific user accomplishing a specific task in a defined time. For example, a fund manager might need to know about a stock's price change within six seconds of a price change. If the product does that, then it's done.

"To make sure that we don't go beyond the design requirements for a product, we have to test a lot. We run over 400 usability tests a year — more than one a day.

"To define the needed feature, we put a chart on the wall at the beginning of the project, pick the ones that are most important to the business' success and focus on them. We come up with all the tasks they need to achieve at their jobs and generate a list of the most important accomplishments for the business. This gives us an ordered list of all the crucial features that a product needs to have that we can compare against."

Ty Giltinan
Vice president
SECA, Inc.
Blue Bell, Pa.

"When the users can sign off that there is enough functionality to start using the system. Beyond that, you're tinkering.

"One way to guard against this problem is by using a methodology that clearly defines not only the deliverables, but includes specifications for feature sets. Then, during the development process, you can compare against the defined feature set to see if you have completed the project.

"Traceability is important. Each design or code component that a programmer is working on must refer back to a predefined requirement from the feature set. Managers must be able to look at the components and be able to trace them back to what the users need.

"It takes a sophisticated manager to shepherd [programmers], allowing them time to learn while keeping their focus on core business goals."

Karen Holtzblatt
President
InContext Enterprises, Inc.
Harvard, Mass.

"We try to keep people focused on the data. The design must be driven from the data and a user's work practice. By staying centered on the data, the team can remain focused on what the customers need.

"Programmers must be held to design specifications that account for each real activity and feature that the application needs to address. If the programmers are not addressing the issues, you're off track.

"As a programmer, you shouldn't be tied creatively, but you should be tied in accountability. You can't ignore the features.

> *"Developers go into this line of work because it's neat. If you take away all tinkering and the ability to learn, the job will become a grind. The hard part for managers is knowing when to draw the line."*
>
> Ty Giltinan,
> Vice president,
> SECA, Inc.,
> Blue Bell, Pa.

"Three questions to ask are: Am I putting this in the product because I have customer data that matters? Am I adding a feature just for its own sake, to balance out the logic? Have I [talked with] the customer?"

Paul DiLascia
Software consultant, author
Reading, Mass.

"When I'm designing, the question I keep in mind at all times is: What are my users trying to do? At the outset, I identify a few test cases for my application. For a database, it might be order entry, time billing and client tracking. While I design, I continually invoke the test applications, asking myself, 'Can I do order entry with this?' If I come up with a design that addresses all the test applications, I'm done.

"More likely, I get bogged down. Usually it's because I'm trying to design something more general than my users need. The sooner you give users something to play with, the better.

"You'll probably discover they're happy with much less than you thought. You might be trying to build the world's greatest document routing system complete with satellite links to Mars when all they want is a simple way to ship Microsoft Word files to printer A.

"In short, the design is done when the users buy it." ■

Kelly is a senior consultant at Hurwitz Consulting Group, Inc. in Watertown, Mass.

UNITED NATIONS INTERNATIONAL COMPUTING CENTRE

The United Nations International Computing Centre, (UNICC), based in Geneva, Switzerland, is a non-profit interagency body providing computer and telecommunications services to the UN family, NGO's, educational institutions and permanent missions.

In the near future, the position of a Networking Engineer will become available in the Connectivity and Networking Unit of UNICC. The profile for this opening is as follows:

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Software Engineer-Develop state-of-the-art software for computer-aided geometric design, scientific data visualization, graphical user interfaces, three dimensional interactive and high-performance graphics/animation, geometric modeling (surface/solid), mesh generations and database management (centralized/distributed). Responsible for requirement analysis/definition, software design/analysis, code construction, software technical and user documentation, software modules integration, configuration managements, bug corrections and quality assurance/testing. Perform appropriate research and literature surveys to ascertain state-of-the-art and efficient approaches to the problems involved. Prototype software to investigate advance modeling methods and associated data structures. Devise and analyze algorithms involved in the code construction phase. Utilize structured and object-oriented techniques in all phases of the software development process. Interact with other members of the technical staff and potential users to ensure support for all needed functionality. Master of Science in computer science +1 yr training in software development. All applicants must demonstrate the following qualifications. (1) The coursework for the degree must include major courses in cagd, graphics modeling and rendering, advanced curve and surface methods/representations, theory of computations/algorithm, and database design/modeling. Minimum graduate semester credit hours required as follows. computer graphics-9, geometric modeling, curves & surfaces-9; database design/modeling-6; algorithm/computation-3 Must have a completed and defended graduate thesis document. (2) Must have done graduate research resulting in a thesis and a computer program involving advanced physical simulation and modeling in image synthesis. Experience in program development using C, C++, Fortran, Pascal, and PROLOG languages. Expertise in programming and debugging with X11, Xlib, Xt, Xaw, olit, Xm, GL, sunplugs. Knowledge of Unix, Irix, DOS, VMS, XENIX, GCOS and CMS operating systems. Conversant with UNIX development tools such as lex, yacc, make, sccs, cvs, rcs, awk, perl, dbx, edge, prof, etc. Experience with IBM, DEC, HP, Cray, VAX, PC and high and low end SGI graphics machines. The applicant must meet the following programming and development experience in terms of number of years. C,Fortran-4, C++,Pascal,Prolog-2; APIs & Toolkits (X windows, graphics)-2.5; Unix,DOS-4; Irix-2.5; VAX,PC-4; SGI,HP,IBM,DEC,Cray-2.5 (3) Knowledge and experience of using advanced techniques in graphics, cagd and modeling, shading techniques, local and global illumination models, BRDF modeling, rendering equation and radiosity, direct and indirect volumetric visualization of large datasets (MRI, PET, etc.), hidden line and surfaces, approximation techniques, geometric representations (nurbs, Bezier-Bernstein-de Casteljau, coons, beta-splines), geometric intersections, cad data transfer, scattered data techniques, constrained and shape preserving interpolation, 3D interface design, fractals and stochastic models, animation techniques, rasterization algorithms, natural simulation and physical modeling, solid deformations. The applicant must have at least 2 years of programming experience using the advanced graphics and geometric modeling techniques listed. (4) Experience in design and analysis of computer algorithms using analytical and empirical methods, complexity measures (space and time) and design methodologies. Must know data models (relational, hierarchical and network) for centralized and distributed databases, fragmentation design, query optimization and distributed deadlock detection. Minimum design and implementation experience required in the areas of algorithm analysis and data management. analysis & design of algorithms-2 yrs; data modeling, database systems design & implementation-2 yrs. Applicants must be authorized to work in the US. $39,000/yr, 40 hrs./wk. 8AM-5PM. Resumes to Marilyn Thomas, Ala State Employment Service, P.O. Box 428, Huntsville, AL 35804-0428. Job Order #AL4247663 E.E.O.

Relational Database Administrator to collect, review, analyze and set project goals for client information solution needs and implement multiple platform systems; design and develop software packages and large application relational database systems using DB2, CICS, and COBOL II on IBM mainframes using MVS/ESA Operating System and TSO/ISPF Xpeditor using SQL, JCL and IBM utilities, DF Sort, ICCF/DOS and VSE. Require Bach in Cmptr Sci or System Analysis and 5 yrs exp. in the job offered or as a Programmer Analyst & Data Processing Mgr. Exp. must include design of commercial systems in areas of Finance, Accounting, Payroll, Inventory, Marketing, and Management Information Systems. At least 2 yrs. of exp must be as a Data Processing Manager. 40 hr wk. 9am-5pm. $45,505/yr. Send resume to 7310 Woodward Ave., Room #15, Detroit, MI 48202. Reference No. 39495. Employer Paid Ad

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Software Engineer to perform application software development including software analysis, software design, and ANSI/C programming for testing; use HP-UX operating system, X-Window/X11, Motif/5.d, PCTCP Develop Kits, Softbench/4.0, HP-Architecture/3.d, Data Flow Editor/2.0, Structure Chart Editor/2.0, HP9000/745 Workstation, HP9000/715 Workstation, PC/486, RT1800 & RT1802 Data Acquisition Card. Require Master's in Comp. Software and 3 yrs. exp. as a Programmer which includes software analysis, design, programming, testing and maintenance in several projects using C programming on UNIX, HP-UX, X-Window, Motif, MS/DOS platform in HP workstation, Dual/68000, and IBM/PC computer. 40 hr wk. 9am-5pm. $45,030/yr. Send resume to 7310 Woodward Ave., Room 415, Detroit, MI 48202. Reference No. 34195. Employer Paid Ad

Software Engineer - Tampa, FL. Provide functional/empirical analyses for design, implementation & maintenance of reusable software in a client server system, develop, test & layout windows. Use X-Windows, Motif, Informix, HP9000/series 700, Interface Architect. Bachelors/Comp. Sci., Engg or Math. 1yr/exp. in job offered or 1yr as Programmer/Analyst. Related occupation must include 1yr/exp using X Windows, Motif, Informix, HP9000/series 700, Interface Architect. 40hrs/wk (8-5 M-F). $34,659/yr. Send resume to Job Service of Florida, 2312 Gulf-To Bay Blvd., PO Box C, Clearwater, FL 34616-4090. Re: Job Order Number FL-1213410

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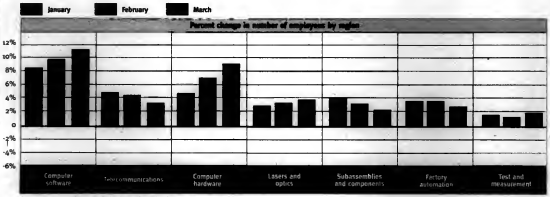
COMPUTERWORLD

Computerworld/CorpTech Career Index



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Executive Director for Information & Computer Services

The Executive Director for Information and Computer Services reports to the Chancellor and will be responsible for providing campus-wide leadership in multiple areas of information technology including computing services, instructional media development, distance learning, and telecommunications. The Director will have primary responsibility for providing effective client service to UALR's multiple constituencies: students, faculty, staff, administrators, and external organizations. The Director will also work with those groups to develop and implement a plan for the acquisition and operation of appropriate computer and information technology. Specific duties will include supervision of the Computing Services staff, coordinating technology activities to share resources, developing and encouraging the use of information technology standards, developing information security policies and funding priorities.

The Director must have the communication skills to work with all levels of users and staff, be able to build team support, and have experience managing budgets. The successful candidate must demonstrate the ability and willingness to work with technology users and the staff who support the University's technology services. This person must have an understanding of current and emerging trends in the use of information technology and be able to apply this knowledge to support research, instruction, and administration. A baccalaureate degree is required; a graduate degree is preferred. Experience with higher education is desirable.

The University of Arkansas at Little Rock is an interactive metropolitan university with a diverse student body of 11,000 undergraduate, masters, and doctoral students. UALR is one of Arkansas' major educational institutions, employing 500 full time faculty. The University's offerings include 100 degree programs, an extensive schedule of night, weekend, and off-campus classes, and a wide variety of community educational services. It is accredited by the North Central Association of Colleges and Schools.

UALR comprises seven schools and colleges: Arts, Humanities, and Social Sciences; Business Administration; Education; Professional Studies; Science and Engineering Technology; School of Law; and the Graduate School.

To apply, send a letter of application, a resume, a one-page statement of your philosophy concerning information resources in a metropolitan university, and the names, addresses, and telephone numbers of at least five references. The review process will begin immediately and will continue until the position is filled. Applications or nominations should be sent to: Dr. John Pittenger, Chair, CIO Search Committee, c/o Chancellor's Office, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204-1099

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Network Application Specialist

needed to maintain WWW, SGML, and Z39.50 servers of major university library and to develop HTML to SGML and HTML to Z39.50 gateways. **REQUIRED:** B.S. degree in Computer Science or allied technical discipline. A knowledge of the Unix operating system, Unix systems management, TCP/IP networking protocols, and the C programming language. **PREFERRED:** Knowledge of library automation and information technologies, especially client/server applications and information standards (Z39.50, MARC, HTML, SGML). **APPOINTMENT:** Professional/Scientific classified position. $26,945 minimum, depending upon qualifications and experience, temporary, 16 month appointment. Apply with resume and names of three references to: Chair, Network Application Specialist, 302 Parks Library, Iowa State University, Ames, IA 50011-2140 by April 17, 1995.

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Qualified candidates must have a Bachelor's degree with a computer-related major or minor, or equivalent work experience. Knowledge of Windows network & communications software is required. Previous quality assurance testing in a Windows environment is desired. Proficiency in Visual Basic is helpful. Strong verbal and written communication skills, relationship management and organizational skills are essential.

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Systems Engineer - provide tech prod support to customers & acct execs, answer tech inquires/dev sys demos, & train customers & their staffs, dev & conduct tech training for acct. execs., analyze tech aspects of RFPs, RFIs, & RFQs. Bach or equiv foreign ed in comp sci field, & 2 yrs exp in job offered, or in programming/analysis. Exp. must include NATURAL Programming Lang., & ADABAS, PREDICT & COMPLETE software prods. $52K. Job in Bloomington, MN area. Resumes to P.O. Box 3125, Reston, VA 22090.

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The IS Manager will have the unique opportunity of forming his/her own team, and will be the primary expert and advisor to the County organization on information technology and services. The successful candidate will have extensive experience in managing a full-service information systems department/division with a background in business or public administration, computer technology, and a demonstrated ability to adapt quickly to shifting information technology needs.

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Application deadline is April 28, 1995.

Sr Technical Support Specialist to provide technical client production & software support & operational support for data center, teach software & data courses & provide on-site & off-site consulting services. 24 hr on-call availability. Reqs M.S. in Computer Information systems or equiv. 1 yr exp in job offered or 1 yr related exp as Production Support Specialist. Related exp. must include each of the following: providing technical support for data operations using database loaders and scripts, 4GL, CHLI, also using UNIX & C. $41,800/yr. 40 hrs/wk. 8a-5p. Send resume to 7310 Woodward Ave., Room 415, Detroit, MI 48202. Ref #41195. "Employer Paid Ad"

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Perform the analysis, design, coding and implementation of large scale business information systems. Develop project work plans and controls for implementation of complex information systems and administering those plans.

Requirements:

- BS in Computer Science
- 7+ years information systems development including specific experience in the design and coding of FoxPro or share systems. Experience with Gupta SQL Windows a plus
- Windows experience required
- Experience in manufacturing systems desired

BUSINESS PROGRAMMER

Evaluate and analyze end user requirements of existing or proposed business information systems. Design computer programs, charts, diagrams and documentation of system. Develop and execute plans for implementation of business information systems.

Requirements:

- BS in Computer Science
- 4+ years experience in software programming with at least 2 years as an analyst
- Experience with Gupta SQL Windows a plus

Our comprehensive benefits package includes medical and dental effective on your start date, a 401(k) plan with immediate vesting of the company matching portion, relocation assistance, incentive plans and much more. For immediate consideration, please forward resume to: **Telematics International Inc., 6201 W. Cypress Creek Road, Ft. Lauderdale, FL 33309. Attention: L. Blunt. Fax: (305) 351-4404. Or via Internet: Lucinda.Blunt.@Telematics.com.** We are an Affirmative Action/Equal Opportunity Employer. M/F/D/V

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Opportunity

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Programmer/Analysts

Are you interested in an IS position that is fast-paced, high energy and challenging? We're looking for Programmer/Analysts who enjoy working in a team environment and providing excellent customer service. Qualifications include a Bachelor's degree or equivalent, strong problem analysis skills, attention to detail, initiative, and effective interpersonal skills. One-four years' structured application programming experience in an IBM, 30XX, OS/MVS environment is preferred. A background in IMS DB/DC is desirable. Reference Department AG-PA.

DB2 System Administrator

The selected candidate will play a primary role in the definition and support of SAFECO's DB2 processing environment. This will include working with systems programming to plan, test, and implement new releases of system software (DB2, QMF, Landmark performance monitor), evaluate, implement and support DBA and programmer tools and utilities (BMC utilities) and enhancements to the processing environment (distributed data, database gateways, package binds, etc.). Additional responsibilities include working with DBA staffs to resolve performance or processing problems, recommending and implementing improved procedures while working with various areas to integrate DB2 into business continuity planning. To qualify, our ideal candidate will have a Bachelor's degree and at least 2 years' experience, preferably in DB2 Database Administration or Systems Administration. IMS/DB, IMS/TM, and CICS experience helpful. Reference Department JL-DB2.

IMS Database Analyst

This position has varied responsibilities which include debugging, technical consulting, design support, and other independent projects related to improving and administering the IMS environment. Excellent communication skills and a strong customer service orientation are essential to this position, as the selected candidate will be working with all levels of IMS users. Superior technical ability, including an in-depth knowledge of IMS DB and IMS TM, should be complemented by a sense of initiative. Reference Department JL-IMS.

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For prompt consideration, please send your resume, referencing the Department for which you are applying for, to: SAFECO Corporation, SAFECO Plaza, Personnel T-17, Seattle, WA 98185. You may also FAX your resume to (206) 545-6362. We are an equal opportunity employer committed to employing a diverse workforce.

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Your 10+ years of experience in project management, specifically with large commercial applications, object-oriented methodologies, and client-server environments will be invaluable. You will also need strong leadership skills, strategic thinking and planning capabilities, and an ability to manage multiple priorities with diverse interest groups. Preference given to master's degree/equivalent business management experience.

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Northwest Natural Gas

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Programmer/Analyst

- 2+ years of programming
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- Associates degree in CS desired

Programmer Analyst II:
- Work with development staff
- Minimum 2 years HP3000 experience using MPEX/XL, COBOL, and COGNOS.
- BSCS or Business IS desired
- Prefer 2-4 years experience as a programmer analyst with emphasis on project management.

NETWORK SYSTEMS ENGINEER & ANALYST

Network Systems Engineer:
- Experience with network design, new product evaluation, project management and high level trouble shooting

Network Analyst:
- Experience with network systems analysis, project structure coordination
- Knowledge of resources for system access and network design for existing and proposed systems.

Both of the above positions require a minimum of 5 years experience and/or project management in a large complex networking environment and BS/CS/EE or equivalent work experience. Both also require experience with Novell, TCP/IP, Ethernet, intelligent hubs, routers and trouble shooting equipment.

SENIOR SYSTEMS ANALYST
- Experience in project management
- Familiarity with development specifications and the ability to work on multiple projects simultaneously
- Prior programming experience in an HP 3000 environment with a hospital or HMO background desired
- BSCS or IS or related field

SYSTEMS MANAGER
- BSCS preferred, AA/CS minimum.
- Requires 4 yrs. systems management experience in HP 3000/MPE/Amisys environment
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8th ANNUAL

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- Companies where computer career students want to work.
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QUALIFICATIONS

- Experience with systems analysis, & modeling on large systems architecture.
- Participation in all phases of project development.

DATA ANALYST

RESPONSIBILITIES

- Identify, analyze and document business data requirements
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DEVELOPER'S journal

Buying and living with a fourth-generation language tool

By Alan Radding

Enterprise 4GL is the new marketing buzzword for what some vendors are calling the second wave of client/server development tools. Exact definitions are elusive, but Forte Software, Inc.'s Forte, Dynasty Technologies, Inc.'s Dynasty and InSync Software Corp.'s Passport generally qualify as enterprise fourth-generation languages (4GL), says Chet Geschickter, editor of "Client/Server Tool Watch," a newsletter by Hurwitz Consulting Group, Inc. in Watertown, Mass.

The so-called enterprise 4GLs use partitioning to build more scalable three-tier client/server applications that isolate presentation, application logic and data management. They may employ some combination of object and repository technology and highly optimized event handlers to support team development and high-volume, real-time transaction processing. They also enable cross-platform development for clients, application servers and databases.

Steve Smith, a senior developer at a major U.S. airline, started working with Passport from Ronkonkoma, N.Y.-based InSync well before the term enterprise 4GL became a buzzword. Until then, Smith had worked exclusively in the mainframe area. The airline, however, was moving applications off the mainframe to a client/server environment. Its developers did the initial client/server systems development using C, X Window System and Motif, essentially building client/server systems with low-level third-generation language (3GL) technology.

What follows is Smith's recreated development journal:

Prior to March 1992: "A tool acquisition team began looking for client/server 4GL technology, but they didn't come up with much. Initially, Passport (which has been around since 1987) offered only a command line and built character-based applications. We tried it as a report writer but lost interest."

March 1992: "I joined a new project team in March 1992 that was setting out to build a graphical user interface (GUI)-based application and was intent on using 4GL rather than 3GL technology. About the same time, Passport introduced GUI capabilities. We did some tests and realized that Passport gave us everything we needed.

"The application we were building was a statistical system that tied into the airline's flight scheduling system. This is a big application. It collects and analyzes a lot of data about how things are going, a lot of statistical analysis of mileage, seats, departures. We did another evaluation of the GUI and decided that Passport was good enough to try."

Summer 1992: "The development team consisted of three people: two who were experienced in Motif and Unix and one — me — who was inexperienced with the new technology. We started working on a large interactive portion of the system that would generate massive reports on demand. We worked on Unix workstations, and the system ran on Mips [Technologies, Inc.] servers. Passport proved to be easy to learn."

December 1992: "We completed the first phase of the system without any problems. Although the Passport 4GL is a complete language, you can drop into C if you want. One team member [worked in C]. The other person and I worked mostly in Passport, so probably 95% to 98% of the rest is straight Passport. One reason we chose Passport, however, is that it allows us to make use of our library of C functions, mixing Passport and C code."

1993: "Users wanted to add more enhancements. By now, one of the people had left the team. We didn't replace him. [We] did the enhancements [ourselves]. Passport made it easy to make the change. For example, Passport uses event handlers for different types of transactions, but we don't have to know how the event handlers work. We just spell out what we want in the 4GL, and the Passport preprocessor puts it together."

1994: "Users wanted even more enhancements. We upgraded the servers to new Sun SPARCservers. Moving the Passport applications wasn't a problem. We just repointed the applications to Sun libraries rather than Mips. We did not have to change any source code. We also upgraded to Oracle7 as the back-end database. With Passport, we didn't have to make any changes. We just relinked and passed the parameter for Oracle7. I can't say the same for native C applications."

1995: "Now the system has reached a steady state. I spent several months reworking the original application modules built in C. It wasn't easy. Including the C modules, I've probably touched 75% of the application in the past couple of months. Looking ahead, we might have to tie in a Sybase, Inc. database too, but I don't think it will be any problem to have Passport go to multiple databases.

"We still don't use Passport for everything. One group is using Uniface. Some people use PowerBuilder, but it is strictly on the PC side. It is up to the developers to choose the best tool for the project. Some developers like going in at a low level. I prefer to do things in Passport." ■

Radding is a freelance writer in Newton, Mass.

Choosing an enterprise 4GL

- Does it support all of your platforms and systems?
- Does it let you build separate server and client components?
- Does it automatically handle the underlying network communications and transaction processing?
- Does it let you build the necessary functionality within the 4GL or must you drop into a 3GL?
- Can you easily integrate existing 3GL code into your systems?
- How steep is the learning curve? Some advanced 4GLs require that you know object-oriented programming techniques.
- Is it difficult to maintain, enhance and change finished applications?
- Is it part of a complete development environment that includes effective rapid application prototyping tools, database querying tools or a report writer?

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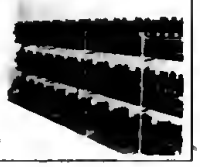

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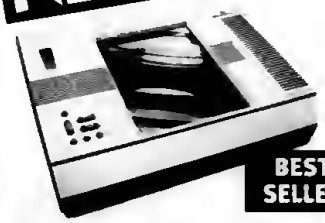

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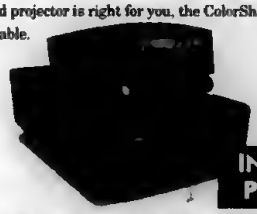

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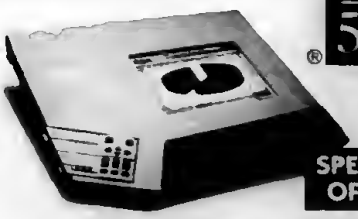

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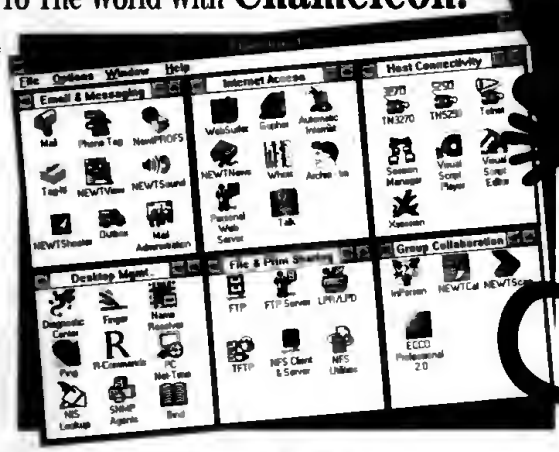

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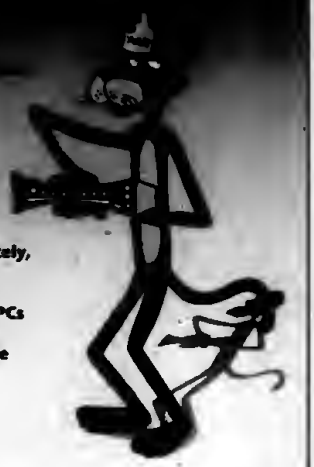

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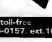

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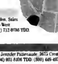

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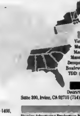

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Gainers		Losers	
Penril DataComm Networks	25.9	Cray Computer (L)	-25.0
Radius Inc.	16.2	Telebit Corp.	-16.7
Merisel	15.5	Platinum Software	-15.2
Computer Task Group (H)	14.3	Encore Computer Corp	-14.9
State of the Art	13.1	Rainbow Technologies Inc.	-13.9
Bachman Info. Systems	12.5	Cirrus Corp.	-13.3
Ross Systems	12.5	Data Switch Corp.	-12.3
Brock Control Systems Inc.	12.0	System Software Assoc. (H)	-12.1

Dollar

Gainers		Losers	
PictureTel Corp. (H)	4.00	Progress Software Corp. (H)	-5.50
NetManage Inc.	3.75	Chipcom Corp	-5.00
FORE Systems Inc. (H)	3.62	LSI Logic Corp. (H)	-4.50
Digital Equipment Corp. (H)	3.00	Wall Data Inc.	-4.38
McAfee Associates (H)	2.25	Computer Associates	-4.13
Computer Horizons (H)	1.75	Texas Instruments (H)	-4.00
Radius Inc.	1.25	US Robotics (H)	-3.62
Adobe Systems Inc. (H)	1.63	Hewlett Packard Co. (H)	-3.63

Technical Data International, Inc., Texas Instruments, Inc. and Micron Technology, Inc. all fell last week. Overall, technology stocks had sharp declines in the week's heavy volume.

Industry Almanac

Cloning around

Now that companies are breaking oew ground by liceosing the rights to clnne **Apple Computer, Inc.**'s **(AAPL)** Macintosh, will their paths lead to Wall Street riches?

Radius, Inc. (RDUS) in San Jose, Calif., is preparing to ship the first-ever Macintosh elone in June. Both Radius and Apple are recommended as Buys, according to Michael Murphy, editor of the newsletter "California Technology Stock Letter" in Half Moon Bay, Calif. "It's a good deal fnr both companies," he said.

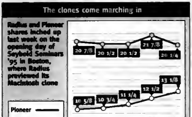
Murphy said be does not expect the Radius clone to compete directly with Apple's Macintosh systems. "The Radius system is at the high end and doesn't cannibalize the standard Macintosh," he said. "What they are basically doing is snpplying a lower-cost solution to s particular problem."

Radius, which focuses on professional color publishing, business productivity and desktop video, shnuld maintain its graphics card and monitor busioess while handling the Macintosb elooe transition, he added.

According tn a report from Jay Vleeschonwer, an analyst at Josepthal Lyon & Ross, Inc. in New York, **Pioneer Electronics Corp. (PIO)** will also release s Macintosh clone. Vleeschouwer said Pioneer, which specializes in consumer electronics but has recently worked nn video products, will help strengthen Apple's presence in Japan.

Murphy said he expects more licensing and eventual direct competition with Apple. "We will see a number of these for very, very low-end Macs and other specialty environments," he said. *—Tim Ouellette*

The clones come marching in



March 31 Stock Ticker

Communications and Network Services OFF 1.2%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
OTC	59.75	20.13	3COM Corp	56.38	-1.00	1.7
NYS	44.38	36.25	Ameritech Corp	41.75	1.00	2.2
NYS	57.12	47.25	AT&T	31.88	-0.75	-1.4
OTC	19.75	12.75	Banyan Systems Inc.	14.88	1.94	-11.5
OTC	39.50	18.63	Bay Networks Inc	37.25	0.38	1.0
NYS	58.88	48.38	Bell Atlantic Corp	52.75	1.25	-2.3
NYS	63.30	30.50	BellSouth Corp	59.13	-1.13	-1.8
NYS	22.75	10.00	Bolt, Beranek & Newman	16.38	-1.38	-7.1
OTC	19.75	8.00	Brooktrout Technology	16.75	-0.75	-4.3
NYS	52.88	33.00	Cabletron Systems	44.75	1.50	3.5
OTC	36.00	10.00	Centigram Communications	33.25	-0.25	-1.6
OTC	50.50	21.00	Chipcom Corp	37.30	5.00	-11.8
OTC	29.88	18.75	Cisco Systems Inc (H)	37.75	2.38	3.8
OTC	11.63	6.13	Compression Labs Inc	9.56	0.44	4.8
OTC	10.30	5.13	Computer Network Tech.	8.25	0.12	-1.5
OTC	14.30	7.50	CrossComm	10.75	0.13	1.2
OTC	4.13	2.00	Data Switch Corp	2.13	-0.44	-12.3
OTC	36.00	17.88	DSC Communications	32.75	1.00	-3.0
OTC	41.75	10.00	FORE Systems Inc. (H)	40.88	3.63	9.9
NYS	35.88	10.00	General DataComm Inds.	14.75	0.88	6.3
NYS	34.88	29.50	GTE Corp (H)	33.30	-0.38	3.5
NYS	303.50	77.00	ITT Corp (H)	101.38	-1.13	-1.1
OTC	25.88	12.25	MCI Communications Corp.	20.69	0.75	3.8
OTC	15.75	5.88	MICOM Communications Corp. (L)	7.13	0.38	5.6
OTC	12.63	4.50	Microcom Inc.	31.75	-0.38	-3.2
OTC	10.50	4.00	Netrix Corp	7.38	0.25	3.5
OTC	7.38	2.25	Network Computing Devices	6.38	-0.30	-7.3
NYS	27.88	7.38	Network Equipment Tech.	24.88	1.25	-4.8
OTC	30.63	13.88	Network General (H)	28.38	-1.13	-3.8
NYS	57.38	26.50	Newbridge Networks Corp	32.75	1.13	-3.2
NYS	40.00	26.00	Northern Telecom Ltd. (H)	38.00	3.62	-4.1
OTC	21.50	13.38	Novell Inc.	18.08	-0.88	-4.4
NYS	41.50	22.75	Nynex Corp (H)	39.63	1.50	-3.6
OTC	26.25	15.50	Octel Communications Corp	31.25	0.00	0.0
OTC	37.30	12.00	Optical Data Systems Inc.	34.50	0.30	1.5
OTC	6.50	2.13	Penril DataComm Networks	4.25	0.88	25.9
OTC	38.13	10.00	PictureTel Corp (H)	37.50	4.00	11.9
OTC	8.13	2.13	Proteon Inc.	6.00	-0.13	2.0
OTC	10.38	2.75	Racotek Inc	6.25	-0.75	30.7
OTC	9.13	3.38	Retix	4.50	0.25	5.9
NYS	24.88	12.44	Scientific Atlanta Inc (H)	23.25	-0.88	-2.8
NYS	44.38	38.50	Southwestern Bell Corp	42.00	-0.50	1.5
NYS	40.13	25.88	Sprint Corp	30.25	-0.13	-0.4
OTC	31.63	13.88	Standard Microsystems Corp	18.38	0.30	3.1
OTC	47.00	8.50	Stratacom Inc (H)	47.63	-2.88	-6.1
OTC	12.88	3.88	Telebit Corp	5.94	1.19	-16.7
OTC	72.00	24.00	US Robotics (H)	63.63	3.63	5.6
NYS	43.75	34.63	US West Inc.	40.00	1.13	2.7
OTC	25.38	12.75	Xircom	14.00	0.50	3.7
OTC	28.00	8.00	Xylogics Inc	19.30	-0.75	1.1

PCs and Workstations OFF 2.16%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
OTC	6.50	3.50	Advanced Logic Research	4.50	0.00	0.0
OTC	48.06	24.63	Apple Computer Inc.	36.12	2.63	7.0
OTC	22.50	10.38	AST Research Inc.	15.81	-0.31	1.9
NYS	49.38	29.50	Compaq Computer Corp	34.88	-0.25	-0.7
OTC	47.75	21.25	Dell Computer Corp	45.63	1.00	2.2
OTC	25.25	9.25	Gateway 2000 Inc.	18.63	-0.12	-0.7
NYS	125.00	71.88	Hewlett Packard Co. (H)	120.38	3.63	2.8
NYS	38.00	18.75	Silicon Graphics (H)	35.75	1.75	-3.4
OTC	37.63	18.25	Sun Microsystems Inc.	34.50	1.00	2.8
NYS	52.38	38.75	Tandy Corp	47.88	1.00	-2.0
OTC	16.00	2.38	Zeos International Ltd	11.13	0.00	0.0

Large Systems OFF 3.37%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
ASE	12.25	5.25	Amdahl Corp (H)	11.13	1.00	8.2
NYS	8.88	4.38	Convex Computer	6.65	0.25	3.6
OTC	2.63	0.19	Cray Computer (L)	0.19	-0.06	25.0
NYS	29.75	14.63	Cray Research Inc	18.13	0.25	1.P
NYS	12.00	6.62	Data General Corp	7.25	0.13	1.8
NYS	36.88	18.25	Digital Equipment Corp (H)	37.88	3.00	8.6
OTC	6.38	1.72	Encore Computer Corp	2.50	-0.44	-14.9
OTC	18.50	6.38	Harris Computer Systems Corp	17.38	-0.44	-2.P
NYS	85.12	51.38	IBM (H)	82.75	1.25	1.5
OTC	15.25	5.00	NetFrame	6.50	-0.88	11.9
OTC	8.75	3.61	Parallan Computer	6.00	0.00	0.0
OTC	16.00	5.38	Pyramid Technology	15.88	0.00	0.0
OTC	21.25	11.13	Sequent Computer Sys	16.63	-0.38	-2.2
OTC	5.88	3.13	Sequoia Systems Inc	4.00	0.08	1.6
NYS	39.88	22.88	Stratus Computer Inc	32.00	-1.00	3.0
NYS	19.75	10.50	Tandem Computers Inc	15.88	-0.88	-5.2
OTC	15.50	3.88	TriCord Systems	5.13	0.00	0.0
NYS	15.25	8.25	Unisys Corp	4.25	0.00	0.9

Software OFF 1.40%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
OTC	52.75	21.50	Adobe Systems Inc (H)	49.63	1.63	3.4
OTC	6.12	2.50	American Software Inc.	3.88	0.00	0.0
OTC	44.00	33.25	Autodesk Inc (H)	42.38	0.13	0.2
OTC	5.38	1.75	Bachman Info Systems	4.38	0.50	12.5
OTC	29.75	20.50	BGS Systems Inc. (H)	28.00	0.00	0.0
OTC	69.25	88.25	BMC Software Inc.	62.25	-2.25	-3.5
OTC	30.38	15.31	Boole & Babbage	27.31	1.09	-3.8
OTC	14.38	6.00	Borland Int'l. Inc.	8.75	-0.19	2.1
OTC	22.25	5.75	Brock Control Systems Inc.	7.00	0.75	12.0
OTC	3.75	1.78	CE Software	3.19	0.19	6.2
ASE	28.38	6.75	Cheyenne Software Inc	14.13	-0.61	-4.2
OTC	22.13	9.75	Cognos Inc. (H)	21.75	1.63	8.1
NYS	64.38	27.38	Computer Associates	36.12	-4.13	-6.5
NYS	6.13	2.38	Computervision Corp	5.00	-0.13	2.4
OTC	49.25	31.25	Compuware Corp	36.38	-0.63	-1.7
OTC	17.25	9.00	Comshare Inc.	15.50	1.25	2.5
OTC	16.75	10.13	Copel Corp.	13.00	2.00	13.2
OTC	16.25	7.25	Dataware Technologies Inc (H)	14.30	-1.50	-9.4
OTC	5.38	2.13	Easel Corp (L)	2.38	-0.19	7.3
OTC	36.25	14.25	FileNet Corp	33.00	0.25	0.8
OTC	8.75	3.88	4th Dimension	4.30	-0.13	-2.7
OTC	27.25	6.50	Frame Technology (H)	19.00	-1.75	-8.4
OTC	25.38	11.50	FTP Software Inc. (H)	31.38	0.00	0.0
OTC	10.25	7.00	Group1 Software	9.75	0.25	2.6
OTC	30.25	6.75	Gupta	10.63	-0.25	-2.3
OTC	10.75	4.63	Hogan Systems Inc.	6.13	0.38	6.5
OTC	49.75	38.00	Hyperion Software Corp. (H)	45.25	1.30	3.0
OTC	17.75	11.25	Information Resources	12.38	-0.38	2.9
OTC	39.75	14.25	Informix Corp.	34.00	-2.63	-2.2
OTC	14.38	7.38	Intergraph Corp	12.12	-0.13	-1.0
OTC	7.50	2.50	Interleaf Inc.	4.88	-0.13	-2.5
OTC	10.25	8.63	Intersolv Inc.	16.00	0.38	2.4
OTC	79.00	27.00	Intuit Inc. (H)	77.63	0.12	0.2
OTC	37.25	19.00	Legent Corp	35.75	0.00	0.0
OTC	73.30	29.75	Lotus Development	38.00	2.00	5.0
OTC	14.00	4.38	Magic Software Enterprises	5.00	-0.38	7.0
OTC	34.30	8.00	Manugistics Group Inc.	12.50	-0.11	-1.0
OTC	31.75	14.75	MapInfo Corp	30.75	-0.38	1.6
OTC	5.13	1.44	MathSoft	3.00	-0.13	-4.0
OTC	31.00	8.30	McAfee Associates (H)	29.00	2.25	8.4
OTC	16.88	9.38	Mentor Graphics (H)	33.75	1.38	10.5
OTC	20.00	11.00	Micro Focus	32.13	0.00	0.0
OTC	8.00	4.63	Micrografx Inc	6.13	-0.13	2.0
OTC	74.13	41.00	Microsoft Corp. (H)	75.13	-2.38	3.4
OTC	45.00	11.25	NetManage Inc	41.75	3.75	9.9
OTC	30.63	35.50	Oracle Corp	31.50	-0.50	-1.6
OTC	44.25	23.38	Parametric Technology	40.00	0.63	1.6
OTC	24.25	13.38	ParcPlace Systems Inc.	34.75	7.00	-0.3
OTC	48.75	13.00	PeopleSoft (H)	42.88	0.75	-1.7
OTC	8.30	4.38	Phoenix Technologies	7.25	-0.25	-3.3
OTC	14.75	3.50	Platinum Software	8.79	5.25	-15.2
OTC	25.20	33.00	Platinum Technology	20.25	-1.25	-5.8
OTC	59.30	27.00	Progress Software Corp (H)	51.75	5.38	9.6
OTC	6.30	1.88	Quarterdeck Corp	4.03	-0.09	-2.1
OTC	38.75	9.50	Rainbow Technologies Inc.	13.50	2.38	-13.9
OTC	6.13	2.00	Rasterops	4.50	0.25	5.8
OTC	6.63	2.88	Ross Systems	5.61	0.62	12.5
OTC	13.00	0.38	Sapient Int'l Corp N.V.	3.00	0.38	10.7
OTC	29.33	9.75	Softkey International Inc. (H)	27.00	-1.50	5.3
OTC	7.50	3.00	Software Publishing Corp	3.50	0.00	0.0
OTC	11.00	5.00	State of the Art	11.88	1.38	13.1
NYS	38.38	25.00	Sterling Software Inc.	15.50	-1.00	2.7
OTC	15.13	3.63	Struct. Dynamics Research	8.50	-0.13	-1.6
OTC	57.00	15.25	Sybase Inc	40.75	-2.75	-0.4
OTC	24.38	9.88	Symantec Corp.	23.13	0.63	-2.6
OTC	59.75	23.00	SynOptics	48.00	-2.75	-5.4
OTC	28.88	10.62	System Software Assoc. (H)	25.06	3.44	12.1
OTC	7.75	3.75	Trinzic Corp	6.38	-0.63	8.8
OTC	28.25	7.88	Viewlogic Systems	8.75	-0.25	2.6
OTC	23.25	12.25	VMark Software Inc.	12.38	-0.13	-0.9
OTC	10.75	5.38	Walker Interactive Systems	7.00	0.00	0.0
OTC	55.38	29.25	Wall Data Inc.	45.75	-4.38	-8.7

Semiconductors OFF 3.40%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
NYS	35.88	22.25	Advanced Micro Devices (H)	33.63	1.63	4.0
NYS	28.13	18.38	Analog Devices Inc. (H)	29.88	1.63	-6.0
OTC	42.38	19.75	Atmel Corp (H)	39.00	-0.88	2.2
OTC	8.88	3.63	Chips and Technologies	7.38	-0.38	-4.8
OTC	38.88	21.00	Cirrus Logic	34.88	2.00	-5.3
NYS	32.25	15.88	Cypress Semiconductor Corp (H)	26.63	2.88	-0.1
NYS	20.13	13.88	Dallas Semiconductor	17.88	0.25	1.4
OTC	31.75	14.75	Integrated Silicon Systems	29.00	1.78	6.7
OTC	90.00	56.00	Intel Corp (H)	85.38	1.13	-1.2
NYS	58.38	16.75	LSI Logic Corp (H)	37.25	-4.50	7.8
OTC	27.13	14.75	Lattice Semiconductor	34.88	1.38	-5.3
NYS	85.13	28.75	Micron Technology (H)	76.63	2.00	2.5
NYS	64.75	42.13	Motorola Inc.	64.75	-1.25	2.1
NYS	22.88	14.38	National Semiconductor	17.88	1.13	-6.1
OTC	39.25	8.75	Sierra Semiconductor (H)	25.63	0.25	1.0
NYS	98.00	63.25	Texas Instruments (H)	89.75	-4.00	-4.3
OTC	18.75	10.25	VLSI Technology	17.69	-0.56	3.3
OTC	7.13	1.70	Weitek	3.88	0.00	0.0
ASE	19.30	11.30	Western Digital Corp	11.88	0.38	2.0
OTC	72.25	29.00	Xilinx (H)	67.75	-0.75	-1.1
OTC	38.30	24.75	Zilog Inc	36.00	-1.63	-4.3

Peripherals and Subsystems UP 0.39%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
OTC	27.75	14.50	American Power Conversion	26.50	2.25	12.8
OTC	27.25	14.75	BancTec Inc. (L)	15.75	-0.75	-4.5
OTC	5.75	3.25	Cambex Corp	4.38	-0.25	5.3
ASE	4.00	1.38	CountryWide & Corp	2.09	-0.13	-4.4
NYS	16.25	9.00	Conner Peripherals	9.63	0.00	0.0
OTC	26.00	9.75	Creative Technology Inc	33.25	-0.50	2.9
OTC	9.88	3.38	Data Race Inc. (H)	6.25	0.75	0.8
ASE	7.61	9.13	Dataram Corp	5.13	0.25	5.1
NYS	54.00	12.38	EMC Corp	38.88	-0.25	-1.5
OTC	20.13	3.50	Emulex Corp (H)	39.00	0.13	0.7
OTC	19.30	31.25	Evans & Sutherland	15.38	-0.75	-1.6
OTC	24.00	14.00	Exabyte	17.38	0.44	2.6
OTC	9.75	1.88	Intelligent Info. Systems	5.81	0.13	4.7
OTC	7.81	1.59	Iomega Corp	7.13	0.00	0.9
OTC	8.00	2.00	IPL Systems Inc	4.00	-0.38	-8.6
OTC	33.13	17.00	Komag Inc (H)	31.75	-0.38	-1.0
OTC	7.88	2.63	Maxtor Corp	4.38	0.13	2.9
OTC	11.50	4.00	Micropolis Corp (L)	5.13	0.00	0.0
OTC	17.75	9.25	Pinnacle Micro Inc	12.13	-0.15	-1.0
OTC	28.75	5.36	Printronix Inc.	30.00	0.30	2.6
NYS	10.75	5.25	QMS Inc. (L)	5.75	-0.25	-4.2
OTC	19.38	11.63	Quantum Corp	39.00	0.04	0.7
OTC	18.25	7.38	Radius Inc.	12.38	1.75	16.2
NYS	14.15	8.38	Recognition International	6.75	-0.15	-1.0
OTC	7.00	4.13	Read-Rite Inc.	4.30	0.13	2.9
OTC	38.63	18.63	Seagate Technology (H)	57.75	2.38	5.2
NYS	39.13	18.30	Storage Technology	39.00	0.25	1.3
NYS	42.38	27.38	Tektronix Inc (H)	60.38	1.88	-4.4
NYS	120.30	90.63	Xerox Corp (H)	117.75	-0.75	-0.3

Services UP 0.2%

Exch	52-Week Range			Mar. 31 1 pm	Wk Net Change	Wk Pct Change
OTC	21.00	12.91	American Mgmt. Systems	18.75	0.25	1.4
NYS	4.25	1.75	Anacomp Inc.	3.75	0.00	0.0
OTC	23.25	16.50	Analysts Int'l (H)	23.25	1.00	4.5
NYS	65.30	47.63	Auto Data Processing (H)	63.13	2.50	-2.1
OTC	36.23	10.00	Cambridge Tech. Partners (H)	30.00	-1.50	-4.8
NYS	38.30	21.38	Ceridian Corp. (H)	33.38	-0.88	-2.6
NYS	27.38	17.75	CompuCom Inc. (H)	26.88	1.13	4.4
OTC	19.00	8.25	Computer Horizons (H)	18.50	1.75	10.9
NYS	52.62	25.25	Computer Sciences	49.13	2.88	-5.5
NYS	12.00	7.38	Computer Task Group (H)	12.00	1.50	14.3
NYS	21.88	6.75	CompUSA Inc.	18.13	2.25	11.8
OTC	31.38	5.38	Control Data Systems Inc.	6.62	0.00	0.0
OTC	12.13	8.33	Egghead Discount Software	8.56	-0.01	-8.7
NYS	41.38	32.88	General Motors E (EDS)	38.75	-1.75	-4.4
OTC	18.30	0.88	Inacom Corp	8.30	0.50	6.2
OTC	25.23	7.50	Intelligent Electronics	9.88	0.13	1.5
OTC	19.88	3.88	Merisel	4.75	0.63	15.2
OTC	28.75	8.38	MicroAge Inc.	9.63	0.30	6.5
OTC	48.75	28.30	Paychex	43.25	1.00	2.3
NYS	47.75	25.75	Policy Management Sys.	44.38	-0.63	-1.6
NYS	38.63	19.75	Reynolds and Reynolds	27.38	-0.75	-2.P
OTC	24.75	18.75	SEI Corp	18.75	-0.13	-0.7
OTC	37.88	22.12	Shared Medical Systems	35.88	-0.13	-0.3
OTC	6.00	4.00	SHL Systemhouse	5.81	-0.25	-4.1
OTC	21.50	9.25	Software Spectrum Inc.	17.00	-0.25	1.4
OTC	48.75	31.30	SunGard Data Systems (H)	45.25	0.25	0.6

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Gainers Losers

Percent

Peripl Data Comm Networks	25.9	Cray Computer (I)	25.0
Radius Inc	18.3	Telebit Corp	16.7
Multisci	15.2	Platinum Software	15.2
Computer Task Group (M)	14.3	Epicore Computer Corp	14.9
State of the Art	13.1	Rainbow Technologies Inc	13.9
Bacoman Info Systems	12.5	Corel Corp	13.3
Ross Systems	12.5	Data Switch Corp	12.3
Brock Control Systems Inc	12.0	System Software Assoc (H)	12.1

Dollar

Picturetel Corp (H)	4.00	Progress Software Corp (H)	-5.50
NetManage Inc	3.75	Chipcom Corp	-5.00
FORE Systems Inc (H)	3.63	LSI Logic Corp (M)	-4.50
Digital Equipment Corp (H)	3.00	Wall Data Inc	-4.38
McAfee Associates (H)	2.25	Computer Associates	-4.13
Computer Horizons (H)	1.75	Texas Instruments (H)	-4.00
Radius Inc	1.75	US Robotics (H)	-3.63
Adobe Systems Inc (H)	1.63	Hewlett Packard Co (H)	-3.63

Technical Data International, Inc., Texas Instruments, Inc. and Micron Technology, Inc. all fell last week. Overall, technology stocks had sharp declines by the week's heavy volume

Cloning around

Now that companies are breaking new ground by licensing the rights to clone **Apple Computer, Inc.'s (AAPL)** Macintosh, will their paths tend to Wall Street riches?

Radius, Inc. (RDUS) in San Jose, Calif., is preparing to ship the first-ever Macintosh clone in June. Both Radius and Apple are recommended as Buys, according to Michael Murphy, editor of the newsletter "California Technology Stock Letter" in Half Moon Bay, Calif. "It's a good deal for both companies," he said.

Murphy said he does not expect the Radius clone to compete directly with Apple's Macintosh systems. "The Radius system is at the high end and doesn't cannibalize the standard Macintosh," he said. "What they are basically doing is supplying a lower-cost solution to a particular problem."

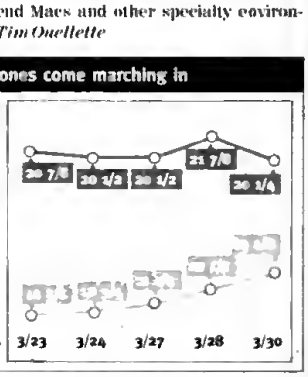
Radius, which focuses on professional color publishing, business productivity and desktop video, should maintain its graphics card and monitor business while bending the Macintosh clone transition, he added.

According to a report from Jay Vleeschouwer, an analyst at Josephthal Lyon & Ross, Inc. in New York, **Pioneer Electronics Corp. (PIO)** will also release a Macintosh clone. Vleeschouwer said Pioneer, which specializes in consumer electronics but has recently worked on video products, will help strengthen Apple's presence in Japan.

Murphy said he expects more licensing and eventual direct competition with Apple. "We will see a number of these for very, very low-end Macs and other specialty environments," he said. — *Tim Ouellette*

The clones come marching in

Radius and Pioneer shares inched up last week on the opening day of Seybold Seminars '95 in Boston, where Radius previewed its Macintosh clone



March 31 Stock Ticker

Exch. | 52 Week Range | Stock | Div | Yld % | Vol 100s | Last | Net Chg

Communications and Network Services — OFF 0.18%

PCs and Workstations — OFF 0.15%

Large Systems — OFF 0.17%

Software — OFF 1.40%

Semiconductors — OFF 0.40%

Peripherals and Subsystems — UP 0.19%

Services — UP 0.45%

KEY: (H) = Reached a new high in the past 52 weeks. (L) = Reached a new low in the past 52 weeks.

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San Francisco, CA 94133

Entry Deadline: May 5, 1995
Drawing will be held May 12, 1995

Don't forget — if your entry is among the first 100 entries received, we'll send you a free Rich Tennant cartoon screen saver.

COMPUTERWORLD

The Newspaper of IS

Oracle/Powersoft

CONTINUED FROM PAGE 1

He is working on-site at a major phone company that runs an Oracle-based customer service application built with PowerBuilder 3.0.

Packard was referring to the fact that Sybase says it has not yet received the right code from Oracle. Oracle, meanwhile, said it will not provide that code until a new technology-sharing contract has been hammered out.

Several users interviewed asked not to be named, but their reactions ran from "concerned" to "pretty mad." Other users have also complained about the situation in Internet discussion groups during the past several weeks. Still, most PowerBuilder and Oracle users are not likely to be affected because Windows NT 3.5 is not the dominant operating system.

Representatives from Oracle and Sybase stopped short of blaming each other outright for the missing driver but said they were reluctant to share the necessary code until they struck a favorable deal for both sides.

Dave Dewan, vice president of technology at Powersoft, denied any acrimony between the firms. He said the companies have agreed in principle to share database code with the other company's tool division, but it may be mid-April before the contract is signed.

After the code is exchanged, shipment of a production-caliber driver "is a matter of weeks," Dewan added.

Sybase completed a similar reciprocal code-sharing deal with Informix Software, Inc. several weeks ago. And as a result, PowerBuilder 4.0 support for Informix databases under Windows NT 3.5 is available.

For its part, Oracle "would very much like to see Sybase share similar technology with us," said Dennis Moore, senior director of tools product marketing at Oracle.

Nevertheless, some users said they felt duped. "It says right on the [PowerBuilder 4.0] box that Oracle is supported, and their advertising says nothing about problems using Oracle under NT," said Kevin Ku, a senior systems analyst at Universal High-Tech Development, Inc., a government contractor in Rockville, Md.

Dewan said PowerBuilder 4.0 does communicate with Oracle — just not specifically over Windows NT 3.5.

Ku said he called Powersoft technical support twice about the problem and was told both times that "they had no idea when we could get this driver." A Powersoft customer since 1992, Universal cannot trade Oracle databases for those from Sybase, Ku said.

Even after Oracle delivers appropriate code and documentation to Powersoft, the products must undergo several weeks of testing before they are production-ready, noted David Moss, managing consultant at TrueNorth Consulting, Inc. in Portland, Ore.

Meanwhile, users have few options, Ku said. They can halt PowerBuilder 4.0 development plans that call for Oracle7 and Windows NT. Or they can compile Oracle-based applications on NT but deploy them so communications to Oracle go through Windows 3.1.

Vendors make NIICE over standard

Sybase last week announced the formation of a consortium of operating system, database and tool vendors focused on getting their respective products to work together more smoothly.

Yet the members of New Information Industry Cooperative Endeavor (NIICE) were short on specifics about how and when they would exchange technical product information to accomplish their stated goal to "create a safe environment for competitors to cooperate for user benefit."

The group will meet again at next month's DB/Expo conference in San Francisco.

The X/Open Co. standards group will administer NIICE, said Jeff Hanson, X/Open's director of marketing. That means X/Open will referee the exchange of technical data and certify that products actually interoperate, he said.

NIICE members include Computer Associates International, Inc., Microsoft and Novell, Inc. Oracle turned down an invitation to join from rival Sybase. —*Kim S. Nash*

OLE/OpenDoc duel

CONTINUED FROM PAGE 1

been plagued by delays and will not hit the market until late this summer. That is also when Microsoft's Windows 95 operating system and a host of OLE 2.0-compliant applications are expected to roll out.

Still, corporate users say OpenDoc's ease of use and links to OLE 2.0 may be their best choice for cross-platform development that bridges OLE and the non-Microsoft world.

Although specific plans have not yet been determined, Microsoft is working with OpenDoc's sponsors on a relationship between OpenDoc and OLE 2.0, and an announcement could be made in April or May, Hinsch said. However, since OpenDoc is not a shipping product, Microsoft cannot commit to specifics regarding such interoperability, she added.

The opening of peace talks between the OLE and OpenDoc camps may raise users' hopes that the two environments can actually complement each other and that users can work in a friendlier development environment than the notoriously difficult OLE 2.0.

Although OpenDoc is gaining popularity among corporate users of beta versions of the developer's kits, this advantage could still evaporate if Microsoft offers better tools with a higher-level programming interface to OLE, warned David Smith, an analyst at Gartner Group, Inc. in Stamford, Conn.

And timing remains a touchy issue, with the market for OpenDoc components and applications stalled until the software is commercially available. Last week, several software vendors working on OpenDoc parts said they do not anticipate shipping them until late this year or early next year.

Revised ship dates

Two weeks ago, IBM and Novell announced updated shipping schedules for OpenDoc.

Novell is running late because it had promised last November that software development kits for Microsoft's Windows 95 and Windows NT 3.5 would be out by now. Novell also said a Windows 3.1 version would ship in mid-1995, but the vendor will not deliver a 32-bit Windows development kit until Windows 95 ships.

Novell's 16-bit version for Windows 3.1 will follow four to six weeks later, a company official said.

Meanwhile, IBM now promises to deliver a complete developer's kit this summer. The company said it will ship OpenDoc 1.0 in the fall along with runtime support so that third parties can license and ship OpenDoc applications and parts on OS/2 Warp 3.0.

"There is a window of time for them to get established, and the fact that they haven't shipped [OpenDoc] yet doesn't help," Smith said. "The biggest gift competitors can give Microsoft is time."

Corporate developers interviewed last week said they want to build applications by combining parts they have constructed themselves with off-the-shelf components. They said OpenDoc will permit them to use commercial parts built for either OpenDoc or OLE.

"My preference is leaning toward OpenDoc for internal programming because it's much simpler than OLE," said an internal information systems consultant at a mid-Atlantic chemical company, who requested anonymity.

Hoechst

CONTINUED FROM PAGE 1

tiple sessions, customized tool bars and routing capabilities.

For the time being, the U.S. branches will have to do without those features. Microsoft Exchange, the client/server groupware product expected in December, would be a natural upgrade to Mail and will fill in most of those gaps.

However, in that case, the seemingly simple electronic-mail standardization issue could have far-reaching effects. The possibility of the company upgrading to Exchange is a problem because Exchange requires Windows NT. But Hoechst Celanese has standardized on Novell, Inc.'s NetWare and is about to upgrade to NetWare 4.1.

Windows NT does come with gateway services for NetWare, said Dilsad Uvez, product manager at Microsoft in Redmond, Wash., so the network could be NetWare, but Exchange would run on NT. Although it is too early to tell whether this will be a seamless connection, Uvez said security would be better to a pure NT environment.

Hoechst Celanese's U.S. operations are substantial and are divided into seven business units, each of which handles its own migration, according to Roger Shjarback, project leader in Somerville, N.J.

Prior to the E-mail edict, these units used a raft of host- and LAN-based mail packages. These included Profs; Digital's VAXMail, TeamLinks and All-In-1; Novell's GroupWise; and Lotus Development Corp.'s CC:Mail. A SoftSwitch, Inc. backbone connected the different systems, Shjarback said.

One small step

Last January, the U.S. offices started to roll out Microsoft Mail 3.2 as part of an overall strategy to standardize on Microsoft's suite of desktop products.

The French and German offices of the company were using Microsoft products and said overall communications among Hoechst units would be better if they standardized.

Making the decision was one thing; implementing it was another. The network administrators had to deal with the issue of coaxing users off one system and onto another. In Kazantzis' case, she adopted an approach that made the migration of 514 users from Profs to Microsoft Mail as painless as possible. She set up a quality assurance team with people from every department. The team held frequent meetings on how to migrate instead of being told, "Here it is; use it."

Kazantzis also used an employee survey to determine the level of expertise in using PCs and Windows. Users were divided into three groups: those using dumb terminals, those who needed Windows and Microsoft Mail training and those who knew Windows but not Mail. Each group received a different amount of training based on familiarity with PCs. The training took two and a half months.

In keeping with Hoechst's policy of letting each business unit decide what kind of hardware to provide, Kazantzis gave each employee in her charge an IBM 486 or better. Before the employees were trained, Microsoft Mail was installed on their machines. During training, they were given their own identifications so that the controlled and real environments would be the same — an approach that worked extremely well, Kazantzis said.

"It was hard in the beginning," said Dorothy Cabarle, an administrative assistant at Hoechst's Summit office who has used Microsoft Mail since the division moved from Chatham, N.J., to Summit last August. "But we got a lot of good schooling. Microsoft Mail is quite something as opposed to Profs." She also said she can do much more with the LAN-based package.

Taking a look at World's best tools

Working with objects has heretofore been a somewhat black art in the hands of a high priesthood that has specialized in it. Now object development is moving closer to the environments with which IS programmers are already familiar, judging from the wares recently on display at Object World in Boston.

Now, objects can frequently be assembled in a visual environment with all sorts of point-and-click assists. The complex interface definition language and other behind-the-scenes connections, among other things, are done automatically. Although areas of contention remain, object developers are taking giant steps toward building applications from components.

Objects can be assembled in a visual environment, with all sorts of point-and-click assists.

Charles Babcock

For example, Rational Rose Version 2.7, an integrated analysis, design and code generation system for C++, can now produce Smalltalk and Ada applications as well. Its visual environment also supports code for two fourth-generation languages, Trinzic's ObjectPro and Gupta's SQLWindows.

This single development discipline for multiple languages is supplied by Rational Software Corp. in Santa Clara, Calif., and would be useful to parallel teams working on large projects. The development environment runs under both Windows and IBM's AIX, Hewlett-Packard's HP-UX and Sun's Solaris and SunOS. In addition, the object models laid out in Rational Rose can be mapped to Oracle, Sybase and SQLBase relational database schemata. It may not satisfy all your needs, but Rose covers a large number of bases.

To me, the following represent the best of the tools on display at Object World:

- **Visual Age for C++.** IBM has moved its visual builder for Smalltalk into its new Visual Age for C++. The graphical development environment has been combined with IBM's C++ tool set, 3,000-plus class libraries and 32-bit C++ compiler. IBM's previous launch of Visual Age for Smalltalk was a big endorsement of the language, and the new version will do the same for C++. Some developers should even find it convenient to move back and forth between the two, given their shared conventions, although a C++ application cannot be reverse-engineered into a Smalltalk application.
- **ORBitize.** Although the Common Object Request Broker Architecture standard from the Object Management Group represents an advance toward object interoperability, CORBA's interface definition language (IDL) is another layer of complexity for developers as they try to construct cross-platform systems. To help solve this problem, ORBitize, a sophisticated IDL generating and browsing tool, is available from a small start-up, Netlinks Technology, Inc. in Nashua, N.H.
- **ProVision Workbench.** Business process re-engineering theoretically works well with an object-oriented development approach because object-oriented models can closely track defined entities and processes in the organization. Proforma Corp. in Southfield, Mich., has made explicit the translation between business process diagrams reflecting the captured business rules and object system modeling. The ProVision Workbench repository and diagramming methods provide a common tool set and discipline to both the business process re-engineer and the applications developer.
- **Orbix.** Dublin company Iona Technologies Ltd. demonstrated Orbix, which allows Visual Basic applications to invoke objects on servers, even though those objects are built with the heretofore incompatible, CORBA-compliant IDL.

Exactly how the gap between Microsoft's Object Linking and Embedding and CORBA will be bridged in a more general sense remains up in the air, given the lack of a firm specification for Microsoft's Common Object Model. But Iona is going ahead on its own, said Aonrai O'Toole, Iona's vice president for development.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

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Inside Lines

Doom and gloom for Web browsers

Network managers at last week's Networld/Interop show swapped experiences in coping with the interactive game Doom, a popular arcade-style bloodfest notorious for gobbling network bandwidth. At AT&T, for example, an automated routine running on some of its internal networks scans LANs every five minutes to find and delete Doom files. Another attendee said he watches network traffic analyzers jump at 5 p.m. when employees are allowed to play. But some show-goers described a potentially more serious threat to network well-being: Web browsers. One systems analyst said his network copes with Doom traffic just fine, but once users try Internet surfing, network usage grows and productivity plunges.

The biggest and the last

Hitachi Data Systems plans this week to show off its biggest hunk of big iron ever. Sources said HDS will introduce a water-cooled mainframe with a 125-MIPS processor, more than double the 60-MIPS engines used in IBM's ES/9000 machines. It is due to ship in the fourth quarter and will pack almost 800 MIPS in its full eight-CPU glory. Mainframe demand is shifting toward the air-cooled, CMOS-based systems IBM shipped last year, and the HDS machine will be the last of the traditional leviathans, analysts said.

Sorry, we have rights to Jerry Lewis, too

IBM may not get to keep Karat, the code-name for its SystemView enterprise management platform, when the first console version ships at the end of April. A global search just revealed that someone in France has the rights to that name, crimping rollout plans for a product that is supposed to unify the control of worldwide networks and systems. The alternatives are bleak: hang onto the lackluster name of SystemView or call in the attorneys.

One step forward, two more to go

Indignant Macintosh and Unix Motif users are crying foul at Oracle because of what they call an unfair licensing policy. Oracle last month eliminated runtime fees for applications running on Windows, which Oracle watchers agreed was a giant step forward. But Oracle still expects a fee of $180 per runtime license for Macintosh and Motif applications. "Runtimes have been one of the major gripes for the last couple of years," said Jeff Jacobs, an independent Oracle consultant.

Come on down to my platform

All the major Unix database makers are fighting to get gangbuster growth companies such as application vendors Lawson Software and Hyperion to support their databases. Sybase plans to give a progress report this week on how its partners are doing. Meanwhile, both Oracle and Informix executives confirmed last week that they are hot and heavy in talks to coax Platinum Software to port its financial applications to their respective databases.

Reach out and thump someone

In the computer business, April showers do not always mean May flowers. For instance, Stac Electronics' Ocean Isle remote access unit will announce ReachOut Version 5.0 on April 10, but the product won't ship until June, company insiders say. Stac will also announce that it is licensing Shiva's Point-to-Point Protocol technology, which is being built into Windows 95. ReachOut 5.0 may strike a blow against Symantec's PCAnywhere and Traveling Software's LapLink for Windows. Stac insiders say they will aggressively go after the retail market that those companies dominate.

Got some great ways to waste time but don't know what to do with the information? Take heart. Judging by the reaction to Monty Python's Complete Waste of Time *CD-ROM, there's a market out there for those who work hard at not working hard. The $45 CD is replete with Python-esque arcade games, dialog lines, a "Desktop Pythonizer" customization kit and a contest about the "secret to intergalactic success." And if you have any secrets you'd like to share with* Computerworld, *do get in touch with us about news items or tips via our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News Editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at mjohnson@cw.com.*

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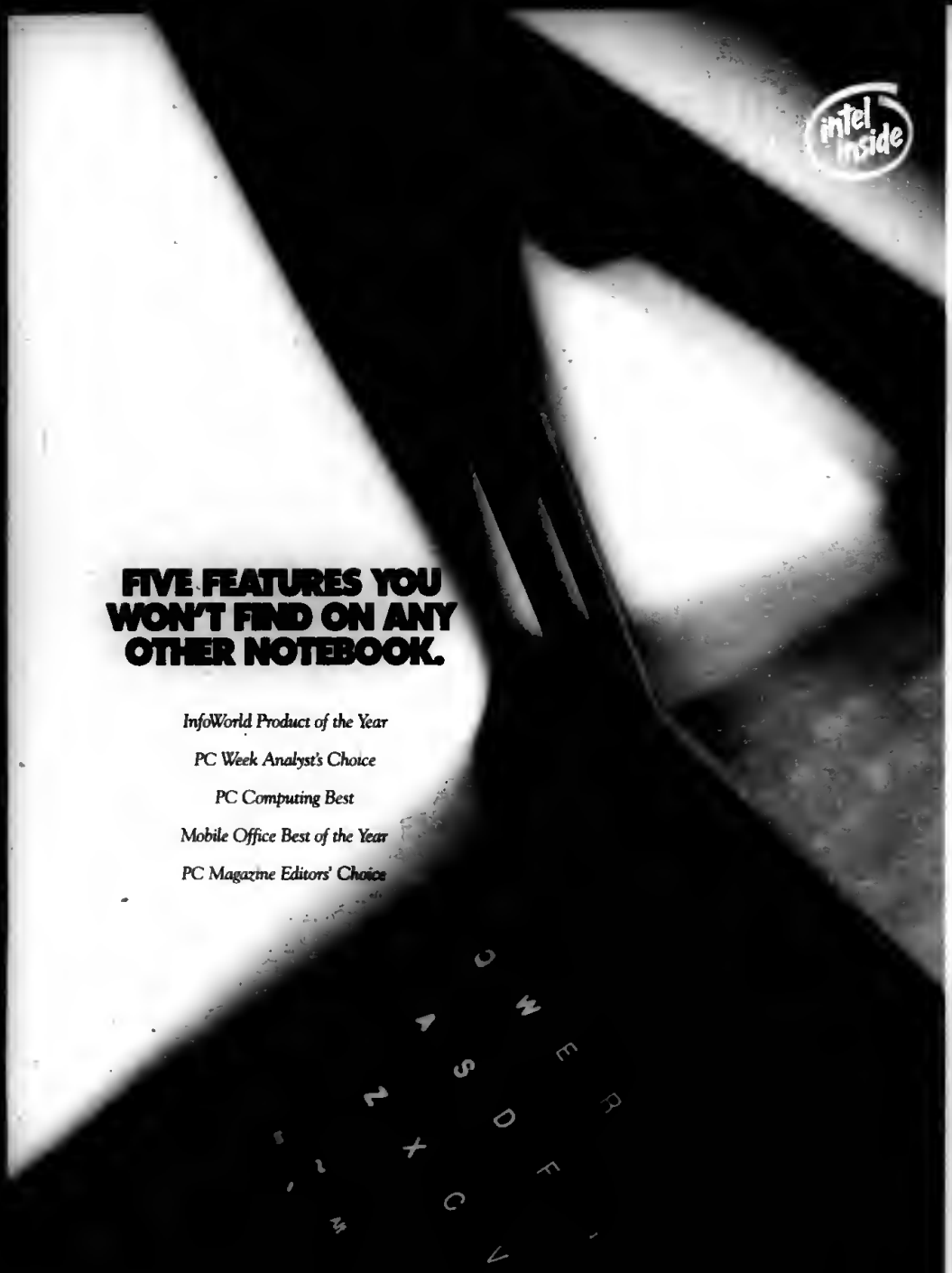

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